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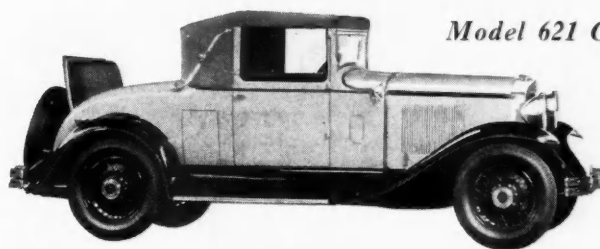
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Number 6

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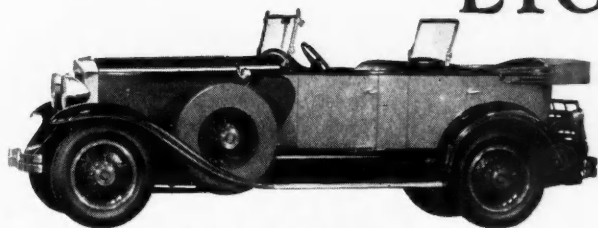
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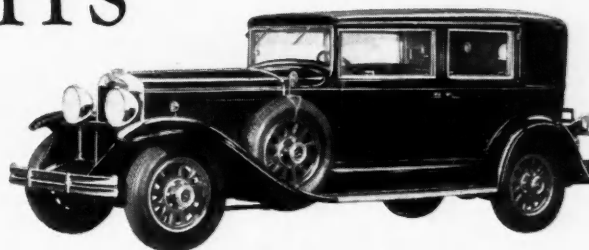


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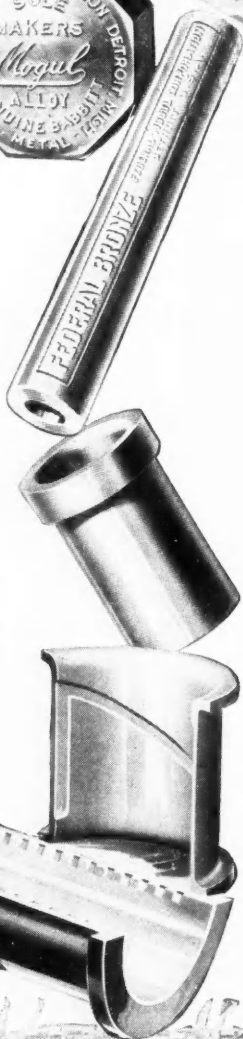
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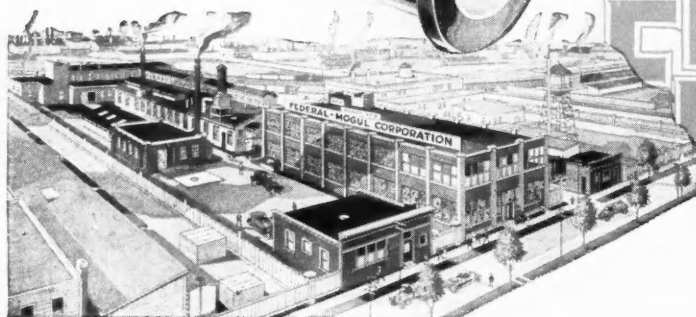
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Volume 60

Number 6

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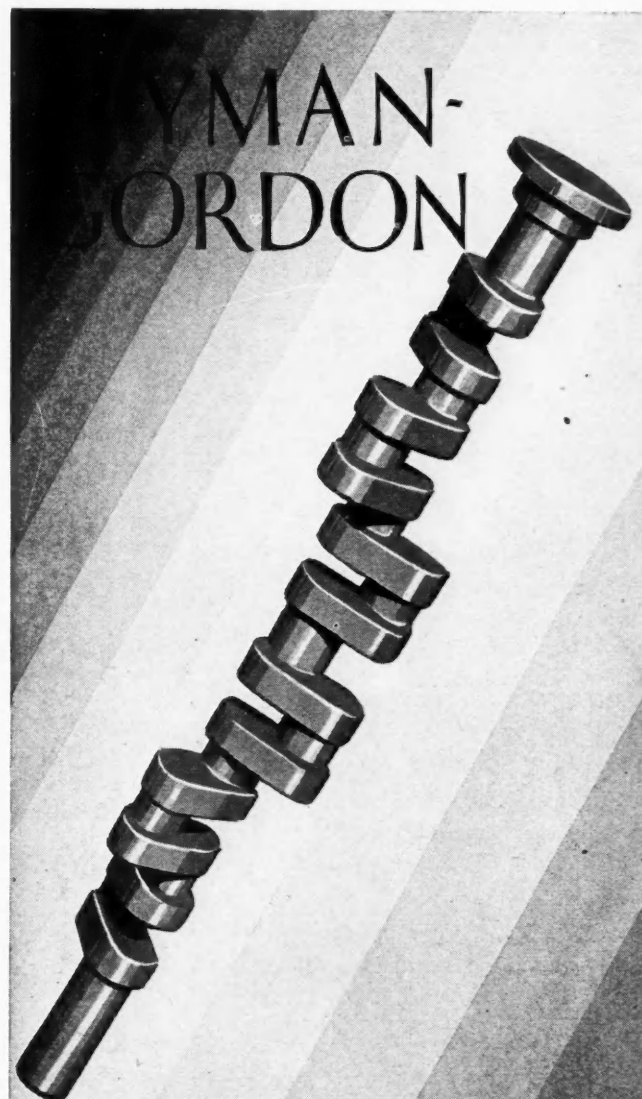
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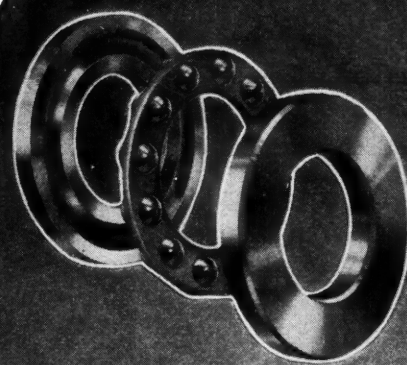
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VOLUME 60

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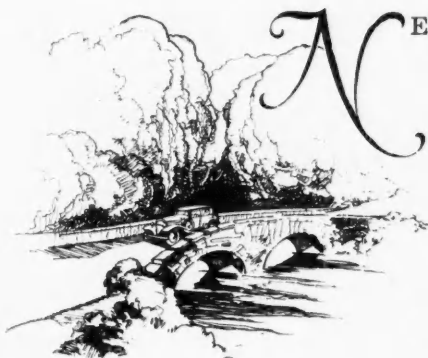
NUMBER 6

Competition Growing Tighter in \$1,000 Price Field

*Nine and possibly 10 passenger car companies will make
bid for business in this particular market in 1929.*

Dealer organizations strengthened for contest.

By Norman G. Shidle



NEW YORK and Chicago Show weeks, with the Society of Automotive Engineers' annual meeting in between, always have made the month of January a sort of club sandwich of automotive gossip particularly attractive to active executives in every part of the industry. This year was no exception. The sandwich contained a number of new ingredients, certain of which have already been definitely identified, while others are known but their exact nature remains to be determined.

While sales and general executives were at the automobile shows contacting with dealers in meetings and conferences, the production men of the vehicle factories were turning out around 400,000 cars and trucks to set a new all-time production record for the month of January. The highest previous January was in 1924, when about 330,000 vehicles came off the assembly lines.

Justification for this huge total output would seem to exist in the excellent retail sales which were common in most lines during the month, as well as in the brisk spring selling season which is portended by a continuance of sound general economic conditions. Detailed sales figures for January are not yet available for the industry as a whole, but partial returns for a number of important lines indicate almost certainly that the month was good.

Talk about the 1929 competitive situation seems to have switched slightly in the last month from the low-priced field where it centered chiefly toward the end of last year to the \$1,000 price range. At least two and probably three makers will be added to the seven who were competing for business in that particular part

of the market last year, and the newcomers are strong companies capable of putting real merchandising punch behind their efforts to gain a place in the \$1,000-price-class sun. Marmon is making its bid with the Roosevelt, the first eight-cylinder car to be priced under \$1,000. Hupmobile will enter the lists around the middle of the year with a six-cylinder car bearing the Hupp name and being manufactured in the old Chandler-Cleveland plants in Cleveland, as announced last week in *Automotive Industries*.

The other makers with models already in this group have without exception improved and augmented their models, so that competitive effort in this field, it seems generally agreed, will reach a peak of intensity before 1929 has run its course.

Dealer Organizations Bolstered

There is a general agreement among factory executives that the battle is likely to be won or lost in the dealer organizations in this as in every other price class. As a result, the last 30 days has seen an even further intensification of the struggle to increase both quality and quantity of retail outlets. There is every evidence that this particular struggle will continue throughout the next few years, with soundness and consistency of policy on the part of a manufacturer probably being the winning card in the long run. This latter conclusion is hazarded on the basis of conversations with various dealers gathered from all parts of the country for the different show week meetings.

There can be little doubt that plenty of dealers today are asking themselves the question "Where will I be five years from now? What sort of business am I building for the future?" With such questions quite certainly foremost in the minds of thousands of retailers, it seems logical to predict the greatest permanent success for those factories whose policies are sufficiently stable and whose merchandising efforts are sufficiently consistent to give to the *average* dealer an answer to those questions which will be satisfactory and favorable from his own selfish viewpoint.

That 1929 will see a continuance of definite financial activities behind the scenes of actual automotive operations seems almost certain in view of the apparently well-founded rumors which circulated through authoritative channels during the show season.

Whether or not the year sees further public consolidations of passenger car or truck organizations, shifting of financial alignments and influence in the background would seem to be probable rather than possible. Almost inconceivably large financial resources have become actively interested in automotive affairs in the last few years and any expectation of a definite preservation of the status quo as it exists today would seem to have good chances of being disappointed.

Constant Change Idea Accepted

To recognize these possibilities, however, is to exhibit a firm belief in the increased stability of the industry as it goes forward. While changes may cause temporary psychological irritations to individuals, the very presence of these mammoth forces augurs a fundamental stability which otherwise could not be inherent in the situation. Reflections of that interest can be expected to come to the surface in the parts and accessory fields probably oftener and sooner than in the vehicle field itself. The idea of constant change as a normal routine of operation seems definitely to have taken hold in the automotive field and to have become a quite definite part of the psychology of the most successful executives, distributors and dealers.

From both a commercial and an engineering standpoint, the front-wheel drive came in for a major place in informal discussions around the shows this year. The imminent announcement of the first front-wheel drive stock car on the American market, of course, was the cause for interest in this construction. Difference of opinion among executives exists, as might be expected, regarding the potential commercial importance of the front-wheel drive car in the future, but the possibilities inherent in it are indicated by the universality of interest exhibited in the topic by executives of almost every company.

Should the first car announced prove commercially sound and popular with the public, there are several other manufacturers probably far enough along with experimental work on a front-wheel design to warrant belief that further models of this kind might follow inside of 12 months.

Despite much talk about lightening car construction for several years back, no uniformity of opinion on the subject seems to exist today among the engineers. While J. D. Mooney, president, General Motors Export Co., was advocating an American-built light car for foreign markets, Joseph B. Graham was telling his dealers that automobiles today needed plenty of weight to stand up under the high speeds and grueling services to which they are normally subjected.

Informal conversation with various engineers and executives indicated a rather general divergence of opinion. The chief advantages of lighter cars from the standpoint of the user—lower fuel consumption and smaller horsepower for given performance—some pointed out, are relatively unimportant to users in the United States. Others urged, however, that there is much in the "cost per pound" theory from the standpoint of the car builder and that competition from a price-performance angle makes the matter of weight definitely important to the manufacturer in the future. While this battle doubtless will be fought out in the laboratories and on the drawing board, the current interest in the topic is worth noting.

Progress of various patent litigations, development of better truck merchandising methods, advisability of frank bargain sales on models about to be discontinued, general opposition to the practice of selling any cars through cut-rate agencies and discussion of the future of the automobile shows themselves were among other topics which came in for frequent debate in the thousands of informal hotel conversations which took place during the January shows this year.

In general the show weeks quite definitely seem to have lived up to their reputations as meeting places for useful automotive discussions both formal and informal in character.

Oil-Burning Pierce-Arrow Truck Tested in France

OFFICIAL tests have been carried out by the French Department of Agriculture on a Pierce-Arrow 5-ton truck transformed to consume heavy oils under the Bellem & Foss principle.

To get comparative figures, two trucks were used, one being a normal Pierce-Arrow running on straight gasoline and the other a modified Pierce-Arrow which consumed gas oil during one of the tests and coal tar oil on another trial. Each truck carried a useful load of 13,413 lb., and they had the same total weight. The comparative figures of fuel consumption per 100 kilometers (62 miles) are as follows:

Consumption per 62 Miles			
	Gasoline	Gas Oil	Coal Tar Oil
Gallons	18.12	18.41	15.1
Cost in dollars	5.75	1.81	2.06
Time	5 hr. 59 m.	5 hr. 7 m.	5 hr. 3 m.

Under the Bellem system the engine is retimed so that the inlet valve opens with a lag of 120 deg. The exhaust valve timing remains unchanged. By this late opening of the inlet valve a high degree of vacuum is formed in the cylinder, and it is into this vacuum that heavy oil is sprayed by a single-cylinder pump turning

at twice engine speed and having a distributor running at half engine speed.

The single plunger pump, which has a constant stroke, operates in a mobile cylinder, one end of which forms the intake valve. This valve is controlled through a roller and a rocker operated by a cam. The cam operates on the valve at the commencement of each aspiration of the piston and, according to the longitudinal position of the roller on the cam, the valve returns to its seat earlier or later, to allow more or less fuel being passed to the engine. The piston pump sends the fuel into a special rotary distributor having as many orifices as there are cylinders to be fed.

The atomizers, mounted in the cylinder head, open automatically under the vacuum created in the cylinders and admit just sufficient air for idling. The extra air, passing through the inlet valve, which opens only 20 deg. before lower dead center, is admitted by the throttle controlled by the accelerator pedal which is also connected up to the pump control.

The engine is started up from cold on kerosene, and after about five minutes running can be switched over to heavy oil.

1928 Motor Vehicle Tax Bill

Totals \$785,386,176

Exceeds 1927 despite repeal of Federal excise levy. Laws applying to fees changed in some states.

THE motor vehicle tax bill in the United States for 1928 totaled \$785,386,176 as compared with \$725,555,812 in 1927, according to data compiled by the Motor Vehicle Conference Committee, New York. Of the 1928 total, Federal excise taxes, up to their repeal last May 29, totaled over \$20,000,000, state taxes were approximately \$605,000,000, municipal taxes were about \$20,000,000, while personal property taxes totaled \$140,000,000.

During 1928, the legislatures of only nine states were in regular session, so relatively little tinkering was done with motor vehicle laws during the year. The 1929 editions of three M.V.C.C. booklets—State Restrictions on Motor Vehicle Sizes, Weights and Speeds; State Regulation of Motor Vehicle Common Carrier Business and Special Taxation for Motor Vehicles—include the latest rules and regulations affecting motor vehicle ownership and operation.

In California, the small flat license fee applied to passenger and property common carriers has been removed and taxation is based solely on a percentage of gross receipts. In addition changes have been made in the fees charged private commercial cars which approximately double the previous charges.

In Louisiana considerable changes have been made in motor vehicle laws, including an extension of size restrictions, restricting weight according to highway classes, changing speed restrictions with a general increase, altering slightly the fees charged private commercial cars and taxing property common carriers a flat horsepower rate plus a capacity rate divided into six classes.

Property common carriers there are now charged \$0.68 per hp., plus a fee for each 1000-lb. capacity ranging from \$12.50 for the smallest trucks to \$150

for weights over 10,000 lb. Highways are divided into four classes and allowable weights vary from 32,000 lb. gross on four wheels or less or 25,000 lb. on one axle for the highest type road, to 16,000 lb. gross or 12,800 lb. per axle on the fourth class. Permissible gross loads are increased for more than four wheels. Maximum speed limits are extended to 45 m.p.h. for passenger cars with lower speeds set for specific districts. Truck speeds remain the same.

In Massachusetts the seating capacity tax for common carriers has been reduced on gasoline-driven vehicles to \$1.25 per seat from \$4 for seven-passenger or less capacity, and to \$1.50 per seat from \$5 for larger capacity vehicles. The minimum fee has also been reduced from \$20 to \$6. Taxicabs, gasoline-driven, are now charged a flat rate of \$4.50 instead of \$15, while fees for gasoline-driven private commercial vehicles have been generally reduced, from \$0.50 to \$0.15 per 100 lb., and with a minimum fee of \$6 replacing \$20.

In Mississippi, the additional fee required of passenger common carriers weighing over 2500 lb. has been reduced from \$4 per passenger capacity to \$2.

General speed limits in New Jersey have been increased from 30 to 40 m.p.h. and the period for non-taxable non-resident operation of private cars has been extended from 15 to 90 days.

Gross weight of a single vehicle or combination of vehicles is limited to 40,000 lb. in Virginia. Additional fees for privately-employed passenger carriers on specific trips is changed from \$25 per vehicle to \$5 per passenger. For single trips under individual agreements not over regular routes the flat fee of \$50 plus private commercial car fees has been changed to a sliding fee based on capacity.



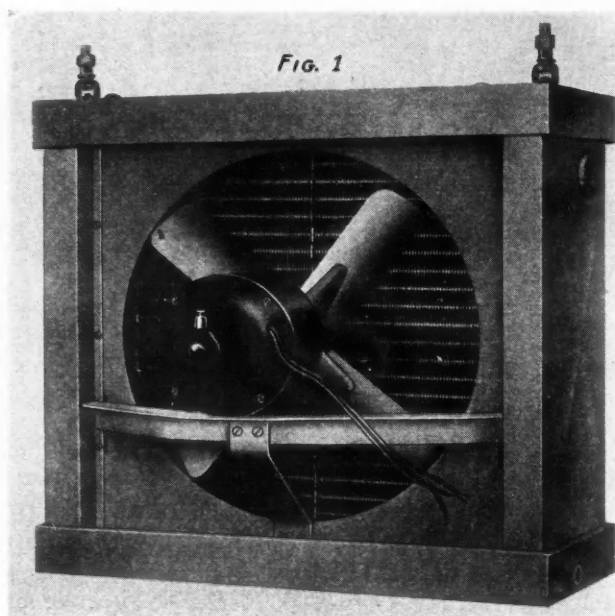


Fig. 1—Thermolier unit heater

By Herbert Chase

MANY industries have profited by adapting new developments in automotive design and production to their own needs, and occasionally the automotive engineer can benefit correspondingly by taking stock of new developments in other industries.

A case in point is found in a type of equipment developed primarily for industrial heating and known in that trade as unit heaters. Such heaters have been employed for at least 20 years. Although some "honeycomb" types date back almost that far, the earlier forms usually resembled ordinary steam radiators, generally with additional cast fins.

In recent years, however, many concerns, including some makers of automobile radiators, have taken to the production of unit heaters closely resembling the automobile radiator in general construction, but built with cores designed for the higher pressures sometimes encountered in steam-heating work. Such units, equipped with a fan and an electric motor to drive it, have a remarkably high heat-dissipating capacity, are light, compact, easy to control and inexpensive to install. They quickly distribute the heat, by means of the air stream circulated, over a large area.

A heater of this type (Fig. 1) known as the Thermolier* and produced by the Grinnell Co., recently underwent tests at the hands of James A. Hall and P. N. Kistler, professors of mechanical engineering, Brown University.

Although the unit tested weighs less than 200 lb. (motor and fan included), and has a frontal area of only $3\frac{1}{2}$ sq. ft., it proved itself capable of dissipating 191,000 B.t.u. per hour at an air speed of approximately 9 m.p.h. and an air temperature of 60 deg. Fahr. This is equivalent to absorbing 75 hp. While the results here given apply to a core heated by steam pressure at 1 lb., and consequently somewhat hotter than is usual in automotive radiators, the air speed is lower than that usually available for automobile work, and much lower, of course, than with aircraft in flight.

Before discussing other results of the tests, it will be profitable to note the type of construction employed, for it appears to be applicable to automotive radiators,

Industrial Suggest Possible Automobile

Tests yield interesting data on heat radiation from finned tubes. Type of construction employed appears applicable to motor vehicle use.

yet is different from anything the writer recalls seeing in the automotive field.

From Figs. 2-5, it will be noted that the core of the unit consists of $47\frac{3}{8}$ -in. seamless copper U-tubes. These have a total length of about 190 linear feet. Upon each leg of each tube are pressed 132 stamped fins $\frac{7}{8}$ in. square, Fig. 4. Fins and tubes together present about 155 sq. ft. of radiating surface. Each tube with its fin is dipped into a solder bath to insure a good thermal bond between tube and fins. Note, however, that no other soldered joints are employed and that strength and freedom from leakage are in no way dependent upon solder.

This unit is designed for cross flow, the U-tubes being arranged almost horizontally, two deep (that is, four legs deep) from front to back of core, Fig. 2. The tubes are given $\frac{1}{4}$ in. per ft. pitch downward in the direction of flow, but easily could be pitched to a sharper angle if desired. Fins, unlike those used in vertical tube radiators, are vertical instead of being horizontal. In consequence, almost none of the radiating surface lies in a horizontal plane, while nearly 90 per cent of it is approximately vertical and thus less likely to catch and hold dust.

Support Could be Applied

Each end of each tube is expanded into a $\frac{1}{2}$ -in. vertical header plate, Fig. 3, a method of construction extensively used in the manufacture of heat exchangers, condensers and other powerplant equipment and found to give permanently tight joints without any solder. In the unit in question, no support for the bend at the outer end of the U is required, but for automotive work such a support easily could be applied if considered necessary to minimize vibration and preclude rattling or abrasion.

For use in steam heating work, this unit is provided with a vertical inlet header A (Fig. 5) and a similar outlet header B. The latter drains into the lowermost U-tube, which constitutes what the makers term an "internal cooling leg," a useful arrangement for steam, but unnecessary for a water cooling job. Note that

* For those interested in factory heating it may be noted that this unit, occupying a total space of about 5 cu. ft., one-twelfth as much as cast-iron radiation, weighs about one-twentieth as much and requires one-fifth as much piping.

Heating Units

Improvements in Radiators

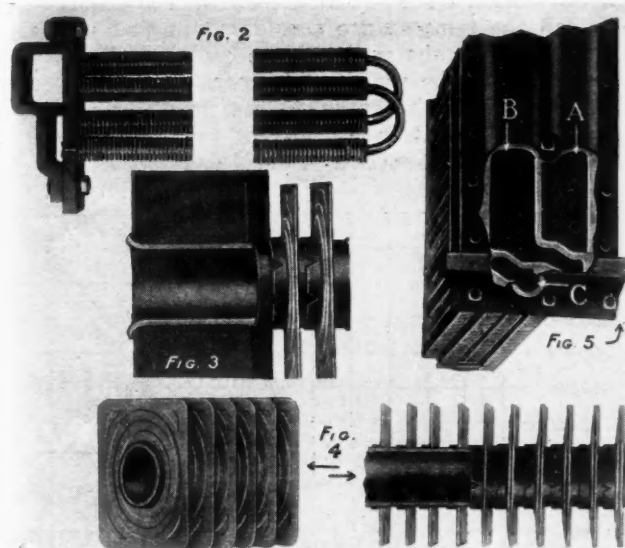
the tubes are not arranged in series, but for parallel flow.

In the test referred to the unit was set up with a short inlet duct opening near a window and so arranged that cold air from outdoors, warmer air from the room, or any desired mixture of the two, could be fed to the fan, thus giving quite a range of inlet air temperatures.

The 18 $\frac{3}{4}$ -in. four-blade fan regularly furnished with the unit was used to force air through the core and into a short outlet duct.

Suitable arrangements were made for furnishing dry steam at the desired temperature to the steam inlet of the unit, while the condensate, issuing from an ordinary radiator trap at the outlet, was measured in suitable weighing tanks. This permitted a ready determination of the quantity of heat given up by the steam, which, of course, is equal to the heat absorbed by the air passing through the core.

Since the temperature of the heated air varies somewhat from place to place over the core area, and a mean value of this temperature is desired, several readings would be required ordinarily to obtain



Figs. 2-5—Details of construction of Thermolier heater

this value for a given run. To obviate this, however, it was decided to stretch a calibrated copper wire across the outlet duct in such a way that, by measuring its variation in resistance with change in temperature, a true mean value of the temperature could be obtained.

The velocity of the outlet air was measured at 16 points over the area of the outlet duct and a mean value taken. Tests were run at fan speeds of 850 and 1100 r.p.m. and at steam pressures of from 1 to 125 lb. per sq. in. One purpose of the test was to determine fan capacity constants and the coefficient of heat transfer from core to air. With these avail-

able, it is possible to calculate heat transfer capacity. The formulas used in the various computations are given below. Among the results obtained, the following appear to be of particular interest from an automotive standpoint:

1. The total heat dissipated for a given steam pressure (and temperature) varies inversely as the temperature of the air passing through the core, Fig. 6. At one pound steam pressure and a constant fan speed of 1150 r.p.m., for example, the heat dissipated is 284,000 B.t.u. per hour at an incoming air temperature of 10 deg. Fahr. and falls off in straight line ratio as the air temperature rises, until at 120 deg. it amounts to only 115,000 B.t.u. an hour.

2. The total heat dissipated at a constant incoming air temperature and fan speed increases with the steam temperature, Fig. 7.

3. The rate of heat transfer at a constant fan speed is directly proportional to the difference in temperature between the air and the steam, as would be expected. No doubt the same relation would hold also for water flow, as in an automobile radiator (that is, be-

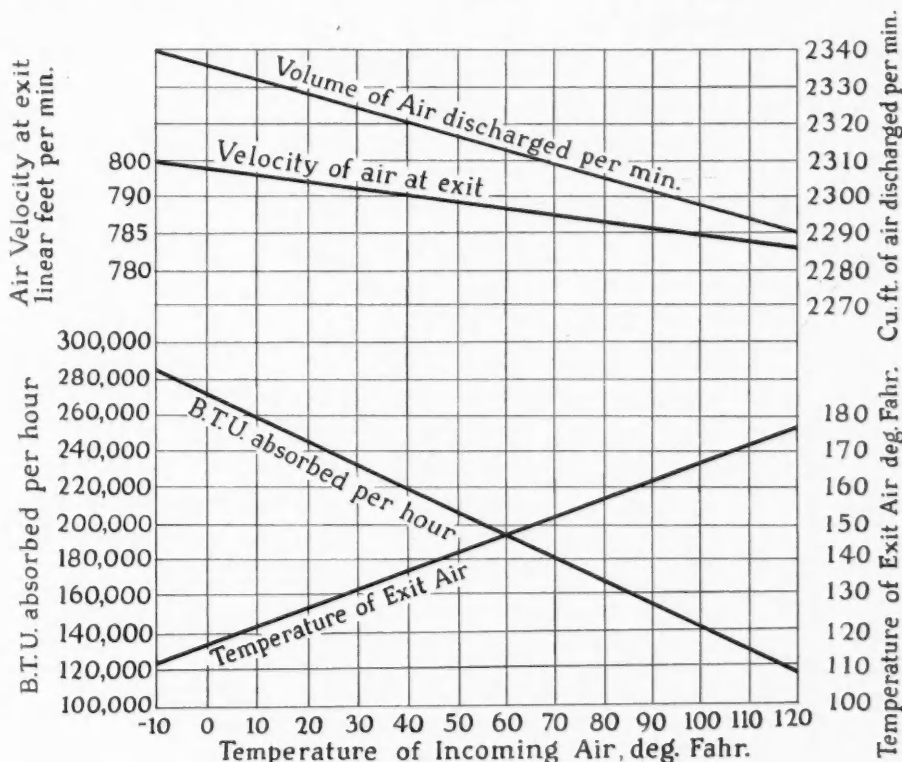


Fig. 6—Relations between temperature of entering air, temperature of exit air, B.t.u. absorbed per hour, velocity of air at exit, and volume of air discharged per minute. All data in this chart apply for a constant fan speed of 1150 r.p.m. and a constant steam pressure of 1 lb. p. sq. in. (steam temperature, 216 deg. Fahr.)

low the temperature at which the steam is condensed), provided the temperature considered is that of water in contact with the walls of the cooling tubes. This naturally would be the mean temperature of the water flowing through the tubes if the flow is sufficiently turbulent to maintain a constant temperature at all points in the cross-section of the tube.

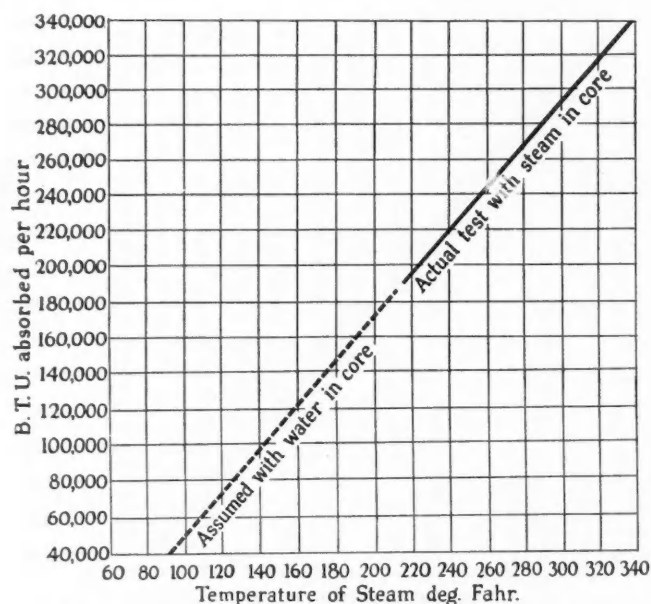


Fig. 7—Heat absorbed per hour at a constant fan speed of 1150 r.p.m. and a constant incoming air temperature of 60 deg. Fahr.

4. Air volume (and velocity) is not constant for a given fan speed, but increases slowly in a straight line ratio as the incoming air temperature is decreased, Fig. 6. The volume also increases as the steam temperature increases.

The following mathematical deductions are condensed directly from those given in the original report of the test:

For a given speed of the fan, the weight of air flowing in unit time should vary directly as the absolute pressure and inversely as the square root of the absolute temperature. Taking a barometric pressure of 14.7 lb. per sq. in. and an air temperature of 40 deg. Fahr. as a basis, the weight of air discharged per hour, W , is given by the following equation:

$$W = C \frac{P}{14.7} \sqrt{\frac{500}{460 + t_1}} \quad (1)$$

where P =abs. press. of entering air, lb. per sq. in.
 t_1 =temp. of entering air in deg. Fahr.

C =lb. of air discharged per hr. under standard barometric pressure and with t_1 =40 deg. Fahr.

Substitution of test data in equation (1) gave the following average values for C :

Fan speed 1150 r.p.m., $C=9234$
" " 850 " , $C=6702$

For a given air speed, the heat transfer should be proportional to the logarithmic mean temperature difference between steam and air, or

$$H = K \frac{t_2 - t_1}{\log_e \frac{t_s - t_1}{t_s - t_2}} \quad (2)$$

where H =heat transferred per hour, B.t.u.

t_s =temperature of steam

t_1 = " " entering air

t_2 = " " leaving " "

K =coefficient of heat transfer

Values of K as determined from test data proved to be very nearly constant for a given fan speed, the average results being as follows:

Fan speed 1150 r.p.m., $K=1808$

Fan speed 850 r.p.m., $K=1532$

Now, since the heat absorbed by the air is equal to the weight passed in unit time times its specific heat at constant pressure ($s_p=0.241$), times its rise in temperature, we can write the equation

$$H = WS_p (t_2 - t_1) \quad (3)$$

and combining equations (2) and (3) we get

$$\frac{K}{WS_p} = \log_e \frac{t_2 - t_1}{t_s - t_2} \quad (4)$$

Knowing the values of constant C and coefficient K , the weight of air discharged by the heater is obtained by equation (1) for any given temperature and pressure of entering air.

With the steam pressure and temperature known and also the temperature of entering air, the exit temperature of the air is determined by equation (4), while the heat transfer then is determined by equation (3).

By use of these equations and constants, the data for the accompanying curves have been calculated. Points determined experimentally agree within 3 per cent with the calculated results through practically the entire range.

G. M. Truck Changes

SEVERAL changes have been made in General Motors trucks T-11 and T-19, the chassis load-carrying capacity (including body weight) of which is 1915 and 5050 lb. respectively. These trucks both are equipped with the Pontiac six-cylinder engine, the rating of which has been increased from 43 hp. at 2400 r.p.m. to 58 hp. at 3000 r.p.m., both bore and stroke having been slightly increased. A 1¼-in. Marvel carburetor is now fitted and the size of the intake manifold has been increased. The Model T-19 is now fitted with a new four-speed transmission, with heavier shafts and gears and different ratios. The low speed forward and reverse ratios have been reduced, being now 5.55 and 5.70, while last year they were 6.87 and 6.98. Second and third speed ratios remain practically as they were on the previous models.

Other changes in the Model T-11 include the elimination of the kick-up in the frame at the front, strengthening of the front axle, use of larger tires and widening of the rear springs by ¼ in. Changes in the Model T-19 include the adoption of three-point mounting for the cab, the use of a heavier front axle and of larger brake drums.

Model T-11 is equipped with 5.00/19 balloon tires in front and 5.50/19 balloon tires in rear, while with the T-19 a choice of three tire equipments is offered, as follows: 5.50/20 six-ply balloon tires front and 32 by 6 in. truck-type tires in rear; 30 by 5 in. single tires in front and 30 by 5 in. dual in rear, and 32 by 6 in. front and 34 by 7 in. rear.

N. A. D. A. Resolution Reflects Dealer Difficulties

Request for factory cooperation in solution of business problems comes after year of hardship caused by "bootlegging" of cars and price cutting.

By A. V. Comings

IN an effort to bring about a change in certain merchandising practices which have become standard in the industry and which are a constant source of irritation in factory-dealer relations—and believed detrimental to dealer profits—members of the National Automobile Dealers Association at their annual convention during the Chicago show laid down a program which is regarded as of considerable importance from the factory viewpoint.

Resolutions were passed asking that the National Automobile Chamber of Commerce name a committee of manufacturers to act with a dealer committee to discuss "certain fundamental problems of automobile merchandising, the solution of which is vital to both manufacturers and dealers." The problems the dealers would like to discuss with the manufacturers, with a view to their eventual elimination as such, were embodied in the accompanying resolution.

The program, as outlined in the resolution, was laid down in suggestions made on the opening day by President Warren E. Griffith, a veteran distributor and retailer himself and a man who has given a lot of serious thought to bettering the business he has made his life's work.

To one familiar with the merchandising of automobiles, it is not difficult to realize why the dealer body seeks at this time to make a serious effort to correct some of the practices which are a constant source of discouragement to automobile retailers.

Problems Acute in 1928

Although 1928 was a highly prosperous year for the manufacturers, the very momentum generated by a huge production year made more acute the problems that have been with the trade almost from the beginning.

Dealers in many cities saw sale after sale snatched away from them either by boldly acknowledged "bootleggers" or by dealers from surrounding territory. Not only did this cost them definite profits, but it affected the morale of their salesmen to a very noticeable extent.

In one city of which the writer has definite knowledge, over 1000 sales went to outside dealers whose tipsters and salesmen worked openly. The number of lost sales was checked carefully through registrations in the outside territory.

Dealers have for years felt that the method of mark-up on cars is unfair to them, as the addition of net charges to the selling price of the car lowers the gross discount in many cases from 2 to 2½ per cent.

The last few months of 1928 saw a regular carnival of price cutting and other methods for getting rid of large numbers of discontinued models, and while this may have been necessary and of benefit to the factories involved, it was hard on dealers in more way than one. Whether any definite plan may be accepted as a standard method for handling this question is doubtful, but



Warren E. Griffith, new president, National Automobile Dealers Association

a full discussion of the problem and the gathering of facts as to its long-time effect on both factories and their dealer organizations will do no harm.

Little may be expected immediately from a factory-dealer discussion of used cars. It is barely possible, however, that if accurate, unquestionable figures show-

(Continued on page 193)

N. A. D. A. Resolution

WHEREAS, there are certain fundamental problems of automobile merchandising, the solution of which is vital to both manufacturers and dealers, Be it

RESOLVED, by the National Automobile Dealers Association in convention assembled in Chicago, Jan. 28 and 29, 1929, that we request and urge the National Automobile Chamber of Commerce to appoint a committee from the membership who will serve with a committee of equal number to be chosen from the membership of the National Automobile Dealers Association as a Factory-Dealer Relations Conference Committee, the function of this committee being to discuss the following:

1. Cooperation to provide greater protection for enfranchised dealers against infringement by unauthorized dealers.
2. Recognition of freight charges as a gross item in the cost of motor vehicles and permit dealers to take a mark-up on freight equal to the mark-up on motor vehicles.

A study to determine the effect of the addition of net charges to the selling price of the motor car and the advisability of the elimination of such net charges is recommended.

3. Determination of a sound policy for pricing motor vehicles of discontinued model or type. Declaration to dealers whether open cut price or used car allowance is desirable in selling such cars at retail.
4. Determination of policy to be recommended to the trade concerning the practice of buying used automobiles at a price low enough to permit the dealer to take a used car mark-up.

A complete study of actual losses sustained by dealers on used cars in relation to net profit on new cars is recommended in order that maximum and minimum percentage of such mark-up can be determined.

5. A general study of operation costs in relation to discounts, especially as to general increase in rents and operating personnel expense during the past ten (10) years as compared to the increase of gross profit, if any, is recommended.

BE IT FURTHER RESOLVED, that we request the National Automobile Chamber of Commerce to cooperate with us in this work and to share the cost of all meetings and studies on such basis as may be determined by agreement between the respective organizations.

(Continued from page 191)

ing the ratios of loss on used cars and net profits on new cars be once placed before manufacturers, a change may be gradually effected. Under present competitive conditions this is unlikely.

The study of cost figures asked for in the final resolution would unquestionably be of great value to the industry as a whole. Discounts have remained pretty much the same for years, yet the dealer's cost of doing business has mounted year by year in a discouraging manner. Undoubtedly the introduction of standard accounting systems among their dealers by many factories will, in the next few years, produce some very interesting and valuable comparative figures, and discounts may be rearranged all along the line, as one large producer found very satisfactory both to the factory and its dealers in 1928.

This much is certain, that both among the rank and file of retailers and among the veteran dealers and distributors who have been successful over a long period, more openly expressed discouragement with 1928 net profits and with the future outlook was expressed by those at the N.A.D.A. convention than for many years past. The resolutions and the request for a conference committee are a direct reflection of the spirit of the dealers present.

Of the business building program given in the two-day session of the dealers, it truthfully may be said that it was the best to which association members have ever listened.

To those progressive car dealers who are looking more and more to their service departments for profits, and

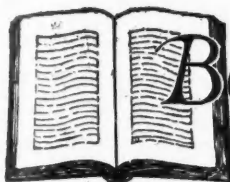
as definite new car sales producers, the talk they heard by James F. Hill gave many ideas that they can translate immediately into more net and far better satisfaction to the car owner.

Mr. Hill is a veteran service consultant who has produced some very remarkable increases in profits and customer satisfaction in many of the larger distributor establishments in eastern cities and he very generously outlined his methods for the benefit of the dealers present.

The sales part of the program was handled by W. K. Braasch, president, The Salesmanship Foundation, Inc., Chicago. Not only did he very thoroughly outline the nine steps of successful automobile selling as he sees it, but he put on an actual morning sales meeting for the demonstration of better selling ideas in which he had the cooperation of a "\$100,000 sales force" consisting of five sales managers of large Chicago car distributors. The sales managers were Sam L. Davis, of the Gambil Motor Co.; Arthur Bunker, of the Bird-Sykes Co.; Charles P. Sanders, of the Chicago Cadillac branch, and Jos. N. Kellerman, of the Pierce-Arrow distributorship on Chicago's row.

The remainder of the program was quite in keeping with the high standard of these annual conventions and was of very practical value to the 1000 dealers present.

Under the leadership of its new president, Warren E. Griffith, the national dealer body may well be expected to carry out a constructive and worth-while program during 1929. Mr. Griffith is an association executive of long experience and is planning to give considerable time to the direction of the organization's affairs during his term of office.



Books for the Business Bookshelf

Laws of Management Applied to Manufacturing

L. P. Alford, The Ronald Press Co., New York. 266 pp. \$4.

IN 1926 the author presented a paper at the annual meeting of the American Society of Mechanical Engineers in which the fundamental laws underlying all successful management policies and practices were codified for the first time. For this paper Mr. Alford was given the Melville Award in the following year and the present book is an elaboration of the ideas introduced in the paper. While detail practices differ widely among industries and among different plants in the same industry, the fundamental basis of all successful operations is the same. The purpose of this book is to show industrial executives that there are such basic ideas behind all their efforts, to demonstrate what these fundamentals are and to assure them of the inevitable soundness of plans and policies based upon them regardless of their detail contradictions. The laws developed cover a wide range of subjects including management, production, material control, wage payment safety and others.

Mechanical Power Transmission

William Stanlar, McGraw-Hill Book Co., Inc., New York, 409 pp., illus. \$5.

AS is evidenced by articles appearing recently in *Automotive Industries* and by the session devoted to the subject at the recent meeting of the Production

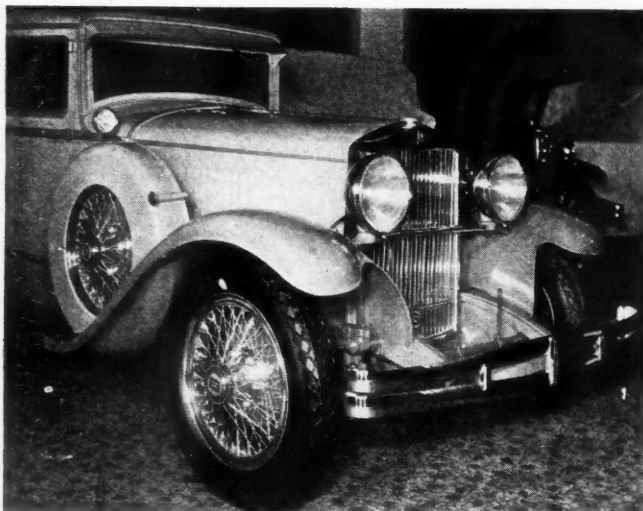
Division of the S.A.E., the question of mechanical power transmission is now alive in the minds of production executives. It is particularly fitting, therefore, that this book, possibly the first one which covers the subject in a thorough and practical manner, should be published. The author has had many years' experience in power transmission in plants of the E. I. du Pont de Nemours & Co. and of General Motors Co., and his book is based more upon practical operating requirements rather than upon theoretical considerations. It discusses belts of all types, chain drives, clutches, pulleys, speed reducers and all other elements used in transmitting power and affords a great deal of information to aid shop men in fitting transmission units to their particular requirements.

Wages in the United States

National Industrial Conference Board, Inc., New York. 168 pp. \$2.50.

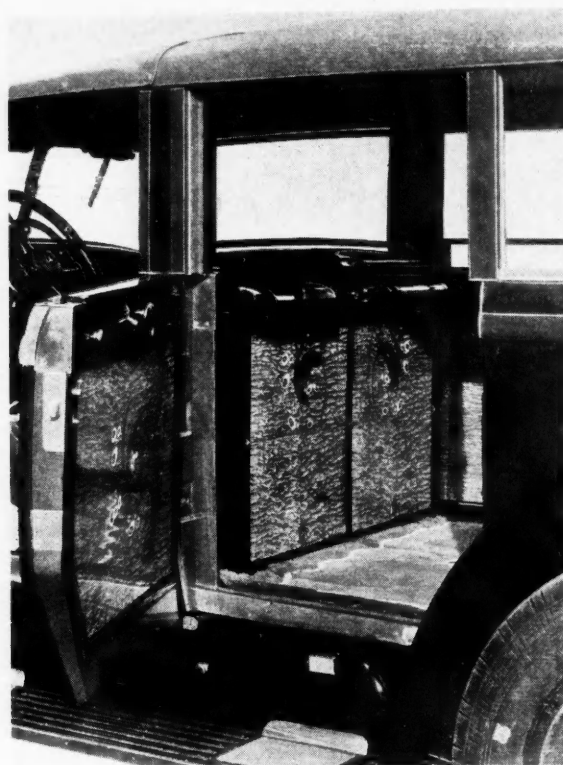
THIS is a very thorough study of wages and employment in the United States both in country-wide movements and by individual industries. It is one of a series of books being published by the board with the purpose of giving business men a more certain knowledge of trends in wages, cost of living and similar items which are so influential on business activities. Considerable information relative to wages and employment in the automotive industry is contained in the book.

Some of the Season's Boldest



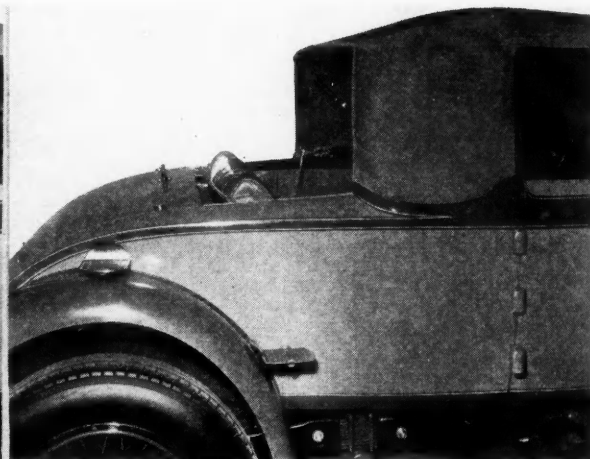
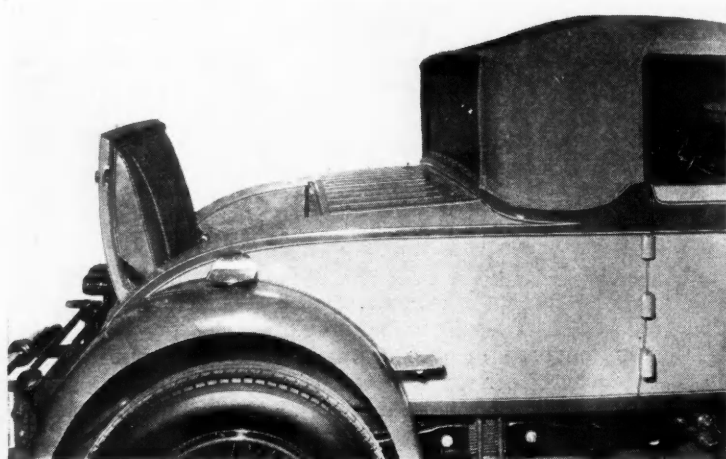
Hupmobile's Metal Tire Cover: Above is shown a de luxe Hupmobile model, an outstanding feature of which is a metal tire cover. An advantage of this over the usual fabric cover is that it doesn't chafe through in fender well mountings. This car also has chrome-plated radiator shutters

*Novel Body Designs Which
Have Attracted Attention
at Recent Shows
and Salons*

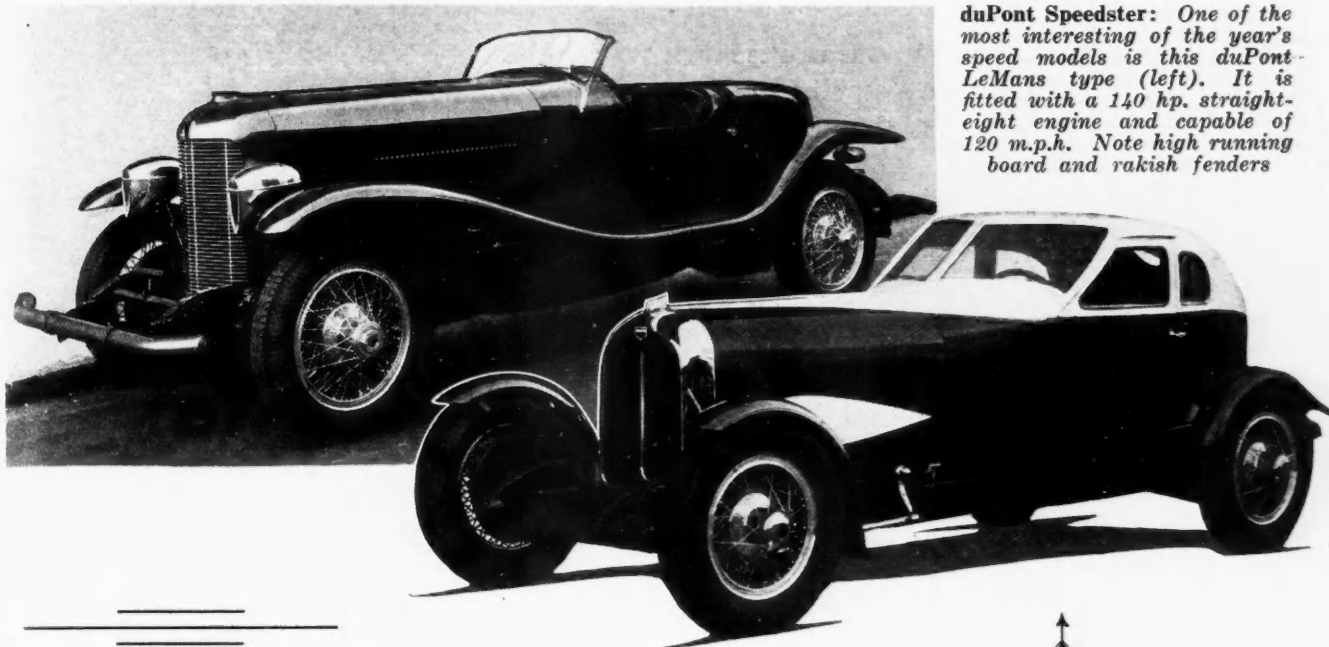


A \$32,500 Limousine: Japanese hand-painted interior panels were introduced at the Chicago salon in this limousine body (right) by Saoutchik of Paris. It is mounted on a standard six-cylinder Mercedes-Benz chassis and the ensemble makes up into one of the most luxurious and costliest jobs ever exhibited in this country

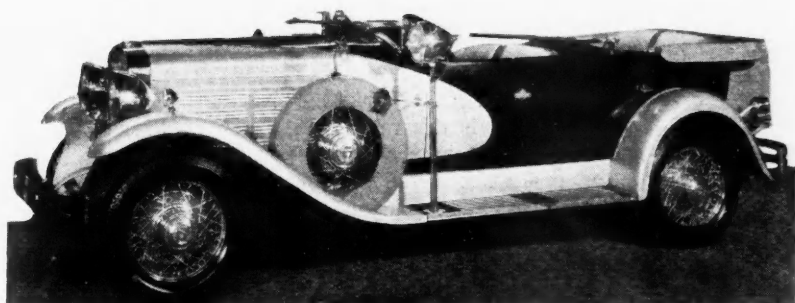
Rolls-Royce Double-Rumble Seat Roadster: Here Rolls-Royce has introduced the double-rumble seat. As shown below, the rear deck conceals two forward facing rumble seats, each commodious enough to provide riding comfort for three passengers. The forward rumble seat can be reached by tilting the two individual seats in the driving compartment. In inclement weather the forward rumble is inclosed in an individual curtain top with windows, arranged in a very original manner



New Passenger Car Models



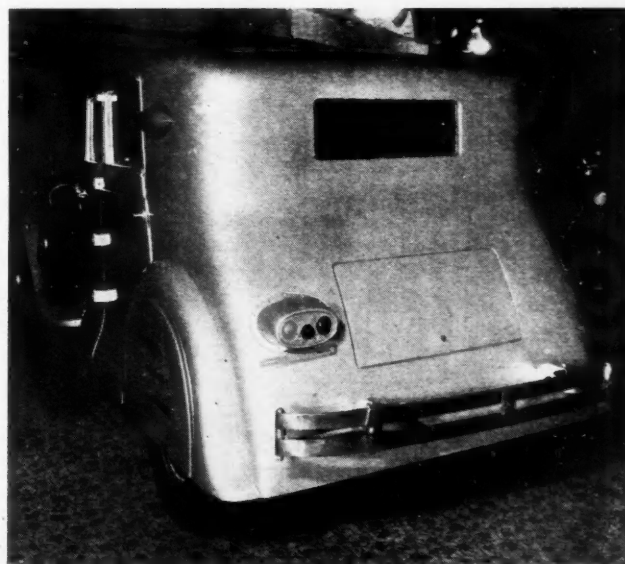
duPont Speedster: One of the most interesting of the year's speed models is this duPont LeMans type (left). It is fitted with a 140 hp. straight-eight engine and capable of 120 m.p.h. Note high running board and rakish fenders



Jordan "Tourer": A good example of the application of custom body design to production cars is seen in this four-passenger Jordan "Tourer" (above). Chrome-plated wire wheels are standard equipment

Auburn Cabin Speedster: This is one of the most daringly designed motor cars that has ever been offered. It is long and low with racy lines and is built to do better than 100 m.p.h. Note boat-shaped rear end of body and absence of running boards. The body at the top point is only 58 in. high. The passenger seats are of the airplane-chair type and can be moved forward or back at the rider's desire. Body construction is also of airplane cabin design from which the car derives its name

Franklin "Pirate": This rear view of the most daring design ever offered by Franklin gives a good idea of the massive appearance of the car. The design gives the impression of great weight but as a matter of fact the body is comparatively light, due to the use of sheet aluminum



Progress is Made in Measurement of *Maximum* Cylinder Pressures

Instruments used in research work on engine of solid injection type described. Greatest accuracy obtained with electric balanced-pressure-diaphragm indicator.

IN tests of carburetor-type engines in the past not much attention has been given to the maximum pressure developed in the cylinders, except in connection with studies of detonation. All high-speed indicators have their imperfections, and when cards are

increase when engine research work is being undertaken, depends directly on the mean effective pressure and only indirectly on the maximum pressure.

The situation is a rather different one in connection with solid injection oil engines. Here any attempt to increase the speed of operation of the engine tends to remove it further from the original Diesel constant pressure cycle toward the Otto or Beau de Rochas constant volume cycle, which change in the conditions of operation is accompanied with an increase in maximum pressure. Almost every change in the operating conditions of such engines that tends to improve their thermodynamic efficiency and their specific output also increases the maximum pressures, and pressures are easily reached which are decidedly troublesome from the standpoint of bearing life and of structural strength of such parts as connecting rods and crankshafts.

Realizing the advantages which an oil-burning engine would have for aircraft use, the National Advisory Committee for Aeronautics has for years carried on research work on various problems connected with the development of high-speed oil engines. One of the results of this work is the recent publication of a bulletin on Measurement of Maximum Cylinder Pressures by Chester W. Hicks (N.A.C.A. Report No. 294). Mr. Hicks says it is desirable to have means for determining the maximum pressure which occurs in an engine cylinder, first, because in research work it is necessary to establish a maximum pressure of operation, and second, because engine life is dependent upon maximum cylinder pressure.

The author investigated the use of the following instruments which he describes and illustrates in his report:

1. Piston-type maximum pressure indicator.
2. Optical indicator.
3. Liquid column detonation detector.
4. Carbon disk-pile detonation detector.
5. Bouncing-pin detonation meter.
6. Ball-check maximum pressure indicator.
7. Disk-valve maximum pressure indicator.
8. Electrical balanced-pressure-disk-type indicator.

In the liquid column detonation detector it was attempted to transmit sound waves due to detonation from a small diaphragm located in

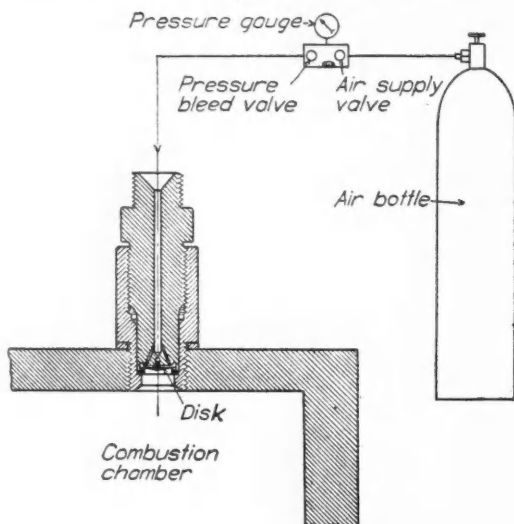
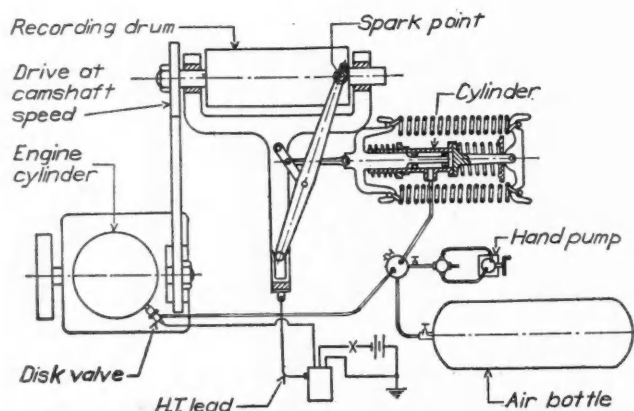
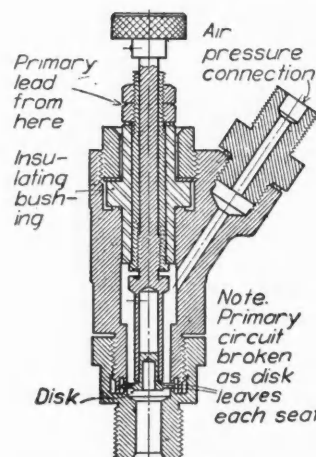


Fig. 1—Disk-valve maximum pressure indicator

taken under full load at high speeds the point of maximum pressure is usually rather poorly defined. Except when there is perceptible detonation, the maximum pressure developed in a carburetor type engine is of no particular consequence; it is not sufficiently high to cause difficulties in the operation of the engine, and the engine output, which it is generally endeavored to



Left, Fig. 2—Electric balanced-pressure-disk-type indicator. Right, Fig. 2-A—Electric balanced-pressure-disk valve



the wall of the combination chamber through a body of liquid to a telephone receiver diaphragm at some distance therefrom. In the carbon pile pressure indicator a diaphragm was exposed to the water in the cylinder head jacket and a direct mechanical connection made with a carbon pile. The assumption was that the detonation pressures would transmit a shock wave to the water around the cylinder head with sufficient force to move the diaphragm and compress the carbon pile. The carbon pile was later included in an electric circuit which also included head phones.

The main source of error found in the maximum pressure indicator (a British instrument much used in engine test rooms) were inertia of moving parts, piston friction and temperature effect on the load spring. Although with this indicator there is no movement of the piston at the time of recording, the inertia and friction forces are present to prevent movement and cause inaccurate settings to be made. The same sources of error are present with the optical indicator, but errors may be reduced because of continuous movement of the piston throughout the cycle and the small piston displacement required to produce a large-scale indicator card.

Did Not Give Usable Results

The detonation detector with a column of liquid between diaphragms and the carbon pile pressure indicator did not give usable results. The "bouncing pin" instrument also was found unsuitable for this purpose.

The instruments operating with check valves gave consistent results when used for recording by both the balanced and trapped pressure methods. The ball check valve was found to be less satisfactory than the disk check valve, because the former required a greater seat width than the latter, and the seat width introduces an error in the readings due to the difference in the area exposed to the cylinder pressure and the balancing pressure. A sectional view of the disk valve maximum pressure indicator is shown in Fig. 1, and it may be pointed out that the ball-check maximum pressure indicator is the same in principle, the only difference being in the type of check valve.

In recording by the balanced pressure method an auxiliary air pressure tank is used to insure pressure in excess of the cylinder pressure to be measured. This air pressure is admitted to the outer side of the disk and so regulated that the maximum cylinder pressures are balanced, as indicated by a pressure gage needle.

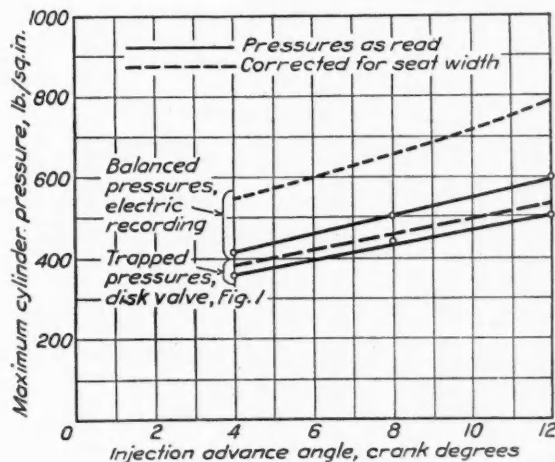


Fig. 3—Comparison of the cylinder pressures recorded by the disk valve of Fig. 1. (Universal test engine, 1000 r.p.m., with constant fuel injection and operating temperature)

The gage needle will fluctuate when the external pressure is less than the maximum cylinder pressure, for there will be a pressure wave produced in the line when the disk is just lifted from its seat. In the trapped pressure method the gas in the engine cylinder is al-

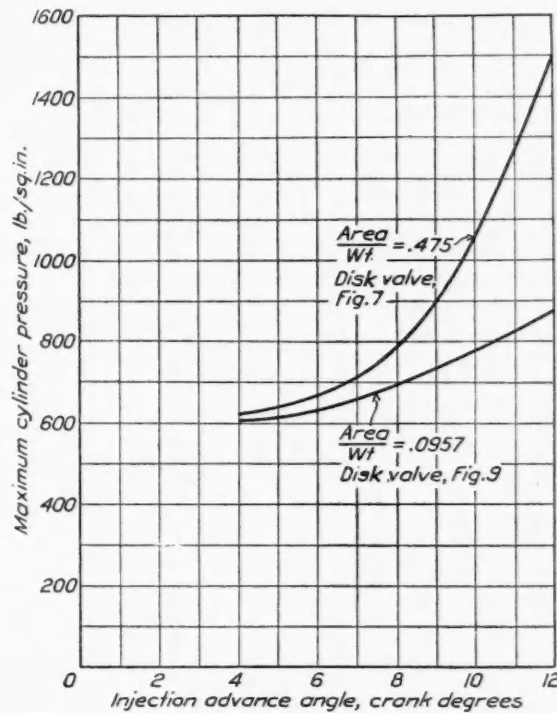


Fig. 4—Effect of disk-seat width on cylinder pressures recorded. (Universal test engine, 1500 r.p.m., with constant fuel injection, compression ratio and operating temperature)

lowed to lift the disk, and some of the gas that passes through the seat is trapped above the disk when it reseats. The principle of operation is that of a one-way, automatic by-pass valve. There is, therefore, a pressure built up in the external line in communication with the pressure gage, which is lower than but indicates the maximum cylinder pressure.

Balanced pressures were recorded quite accurately with the disk valve shown in Fig. 1. The disk of this valve has a large area exposed to the cylinder pressure for its mass, and has a seat width of less than 0.005 in. The greatest error introduced with this instrument is in observing or obtaining similar small fluctuations of the Bourdon gage needle in all tests just before they are damped out.

The electric balanced pressure indicator shown in Fig. 2 (a British instrument) has a disk seat width of 0.034 in., which gives incorrect readings, because of the different areas exposed to the cylinder and balancing gas pressures. With an air pressure of 700 lb. p. sq. in. holding the disk on its seat, a cylinder pressure of 935 lb. p. sq. in. is required to equalize the force on the disk and cause it to record. Even though the disk of this indicator has excessive seat width and mass, it recorded maximum cylinder pressures consistently, and improvements could be made in it and corrections applied to improve its performance. For instance, the disk was replaced by a thin diaphragm clamped at its outer edge between two perforated supports to limit its displacements. This method of operating the electric circuit breaker mechanism greatly reduces the inertia forces of the indicator.

Curves of brake mean effective pressure and the cor-

responding maximum cylinder pressure as recorded by the balanced pressure method and the trapped pressure method with the disk valve shown in Fig. 1 are given in Fig. 3. The compression pressures were 350 and 560 lb. p. sq. in. and the engine speed was 1500 r.p.m. The difference in compression pressure caused a difference in combustion and provided a means for comparing the two methods of measuring maximum cylinder pressures. It may be noted that the pressures recorded

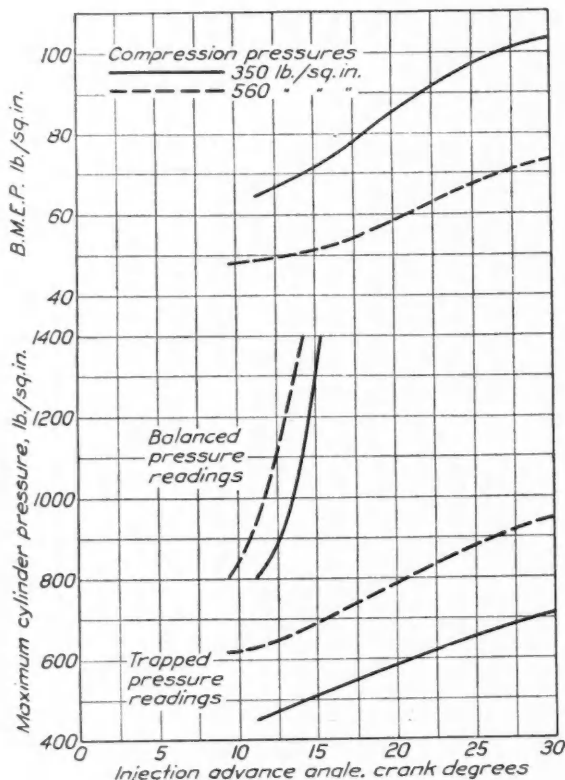


Fig. 5—Effect of mass and area of valve disk on cylinder pressures recorded. (Universal test engine, 1500 r.p.m., with constant injection, compression ratio and operating temperature)

are not in accordance with the brake mean effective pressure. At 350 lb. compression pressure there was less heat for the preparation of the fuel, and therefore more fuel was burned at constant volume with a resultant high maximum cylinder pressure, as evidenced by the high b.m.e.p. and sound of the combustion knock. Because of the poor penetration of the fuel at the high-compression pressure, all injection conditions being maintained constant, the brake mean effective pressure is low, but there is more constant pressure combustion and a slower pressure rise, which gives a higher maximum pressure reading.

A fast rising pressure with a high maximum value of short duration does not have time to do the necessary work on the disk to record, whereas a slow pressure rise with a low maximum pressure will record a relatively high pressure. The trapped pressure readings are too low, because the cylinder gas must lift the disk and enter the valve against the existing trapped pressure. The balanced-pressure readings are probably a better indication of the true pressures, for only the inertia of the light disk and sensitivity of the gage must be accounted for in the actual movement of the indicating mechanism.

The effect of seat width on pressure recording by a balanced-pressure disk valve is shown in Fig. 4. For these tests the conditions of engine operation were

maintained constant, which should give approximately the same maximum cylinder pressures to record. The trapped pressures were recorded by the disk-valve indicator of Fig. 1, and the electric recording was done by the electrical, balance-pressure indicator of Fig. 2-A. The dotted curves give cylinder pressures corrected for the effect of differential disk-pressure area produced by the seat widths. The electric recording gives higher values than those recorded by the trapped-pressure method, because it is only necessary that the disk leave its seat to record.

The effect of the mass of the disk on the recording of cylinder pressures, as represented by the area-weight ratio, is shown in the curves of Fig. 5. As in the tests shown in Fig. 4, the engine-test conditions were maintained at constant values. The readings were made by the balanced-pressure method with the valves of Figs. 1 and 2-A, the disks of which had area-weight ratios of 0.475 and 0.0957 respectively. Corrections were made for the seat widths in each instrument, so that the pressure differences between the two curves in Fig. 5 indicate the effect of the inertias of the disks.

The type of maximum pressure indicator using the pressure itself to do all the work of recording has a fundamental disadvantage, because it can not respond to rapid variations of pressure. It must absorb a definite amount of energy from the cylinder pressure to overcome large inertia forces, and, since the time rate of pressure rise is variable, it is difficult to attempt a correction for this loss.

Error is Reduced

In some instruments the inertia of the moving parts or the movement of these parts is reduced to a small value, but this only reduces the error and does not give accurate results or an accurate method for making a correction. With the type of instruments using the cylinder pressure to operate only a small part of the recording mechanism, the error is reduced and may lead to the elimination of enough variables so that more accurate corrections can be made.

In analyzing the destructive powers of cylinder pressures there are three characteristics which must be considered: (1) the cylinder pressure attains a certain force value; (2) it attains this value in a definite time, and (3) the pressure is maintained a definite length of time. The ability of the cylinder gas to do work on the indicator is a function of force and time. The work done by the cylinder pressure may be separated into the useful work done on the piston as mean effective pressure and the destructive work. If the maximum cylinder pressure is of too short duration it can do little useful work. The pressure may be of sufficient duration, however, to cause a deflection of the cylinder and cylinder head with enough movement to set up a sound wave. This deflection need not be much, when it is realized that the amplitude of sound waves in air audible to the human ear range from 5×10^{-8} to 4×10^{-3} in.

The detonation "pink" of the carburetor engine is the manifestation of an extremely high and fast rising pressure of short duration. This type of pressure rise delivers a blow to the piston and cylinder head; and, if the force is sufficient to stress the metal beyond its fatigue limit, repeated stressing will cause failure.

The principal conclusion drawn from the investigation so far is that the greatest accuracy in determining maximum cylinder pressures can be obtained with an electric, balanced-pressure-diaphragm or disk-type indicator, so constructed that the diaphragm or disk has a large area in relation to seat width and mass.

Just Among Ourselves

Free Wheel Drive Arouses Little Interest

SO-CALLED "free wheel drives" have had some popularity abroad, and one of the British automobile publications recently devoted considerable space to a discussion of their possibilities and advantages. The chance of their gaining some favor in America exists, of course, but it is difficult to see that chance as very bright. The disadvantages seem to outweigh the advantages by a fairly wide margin, so far as American driving is concerned, at any rate. This is approximately the point of view indicated by replies from the chief engineers of nine of our most important passenger car companies whom we queried recently on the subject.

* * *

Gear-Shifting Problem Attacked From Other Angles

GREATER fuel economy and increased ease in gear shifting after the car has been started are the chief advantages claimed for the free wheel drive. One chief engineer thinks "that there are some possibilities for this device being adopted," while another of a smaller company "really believes this device has possibilities." Majority opinion, however, agrees with the statement of the chief engineer of one big company, who says he can see little justification for the added complication of the free wheel drive, since "all of its advantages and none of its disadvantages can be obtained by de-clutching." Increased work put on the brakes is the disadvantage most emphasized, while increased cost and manufacturing difficulties are mentioned as well. The chief engineer of another big company seems to express a general view when he

says that: "The coming of the internal gear and the synchromesh transmission now used in the Cadillac seem to me to indicate that the American engineer is going to attack the gear-shifting problem from angles other than by the free wheel method."

* * *

Research Grows in Marketing Field

RESearch goes marching on. There are about 1000 industrial organizations maintaining research facilities today as against less than 600 in 1921, we are told. The interesting part is that some real research is beginning to be done in the marketing field as well as in the physical and chemical realms. An important sales executive called us to order a few weeks ago because we have said on several occasions that marketing effort was not conducted as efficiently as production effort on the whole in the automotive field. His department, he claims, lets go of a dollar just as reluctantly and relies on previous analysis just as much as the manufacturing division. The factors being dealt with by the sales department are, of course, far less tangible than those the production department deals with, which we admit makes comparison difficult. Can't help but feel, however, that this very abstractness of marketing factors is the greatest reason why more facts are needed than in the production division—and that in the past less effort has been made toward such accumulation and analysis.

* * *

Job for Entire Industry to Tackle

WE are ready to admit that a good sales executive today scans his budget just as

closely and carefully as any production manager. Difficulty is that not enough factual studies have been made to result in setting up of detailed standards of performance for various elements in the marketing division. The presence of such specific standards in most phases of production today make it almost impossible for inefficiency to exist in that end of the business for very long without becoming very apparent in the cost and quality of the product. Lack of such standards makes it harder for the sales executive to put his finger on the weak spots or to remedy them as quickly. The job to be done, as we see it, is one for the industry rather than for the active head of an individual sales department. In at least one instance extensive work along this line is being done by a special division functioning for a group of companies.

* * *

New Models May Affect Production

COL. LEONARD P. AYRES predicted a few weeks ago that while automobile production almost certainly would be greater in the early months of 1929 than in the early months of 1928, it would be less in the closing months of 1929 than in the closing months of 1928. Col. Ayres may be right, but it would seem quite possible that the introduction of new lower priced cars in the late spring or early summer by one or two important makers may affect production totals to a material extent. Certain companies, in other words, may not do any better—perhaps not as well—as last year in the first half, and then go ahead to beat last year in the third and fourth quarters. Seems possible, anyhow.—N.G.S.

Industry Giving More Thought

By Louis Rutherburg

Vice-President, General Motors Truck Corp.

*Earning capacity depends largely
Better thinking requires*

INDUSTRIAL growth of the next 25 years would amaze present executives if they could have a glimpse of the situation at the end of that period, I am convinced, although all of us consider that industry has advanced apace in our own time.

Prophesying in business is hazardous. The signs already are fairly obvious, however, and they point to a growing appreciation of intangibles in men as an outstanding characteristic of modern industrial thought. These are the factors in business which cause it to earn more than the current rate of interest on its tangible assets.

When bankers buy a business, they pay for intangible assets and for tangible assets. The latter consist of physical properties subject to inventory, such as land and buildings, machinery and equipment, raw materials and articles still in the manufacturing process.

If the tangible assets of a business are worth \$1,000,000 and if that amount in cash could be realized by selling them, the sum could be invested in bonds, the return from which would be from 4 to 7 per cent, or from \$40,000 to \$70,000 a year. If the same business consistently earned 30 per cent on its tangible assets, or \$300,000 a year, it would be apparent that the business possessed large intangible assets. Bankers would pay a very large premium above the value of the tangible assets for the intangibles.

Generally speaking, bankers are canny gentlemen not given to chucking money because of a generous impulse. If they are willing to pay large sums for intangibles, it follows that those engaged in industrial management should and will evince a growing and increasingly intelligent interest in intangibles.

Just as the value of agricultural products is a measure of the energy put into cultivating land, rather than a measure of the area farmed, so the earning capacity of a business is an index of the managerial brain-power instilled into the business rather than an indicator of its tangible assets. That does not mean the brain-power of the president and his staff only, but the combined brain-power of every executive in the business.

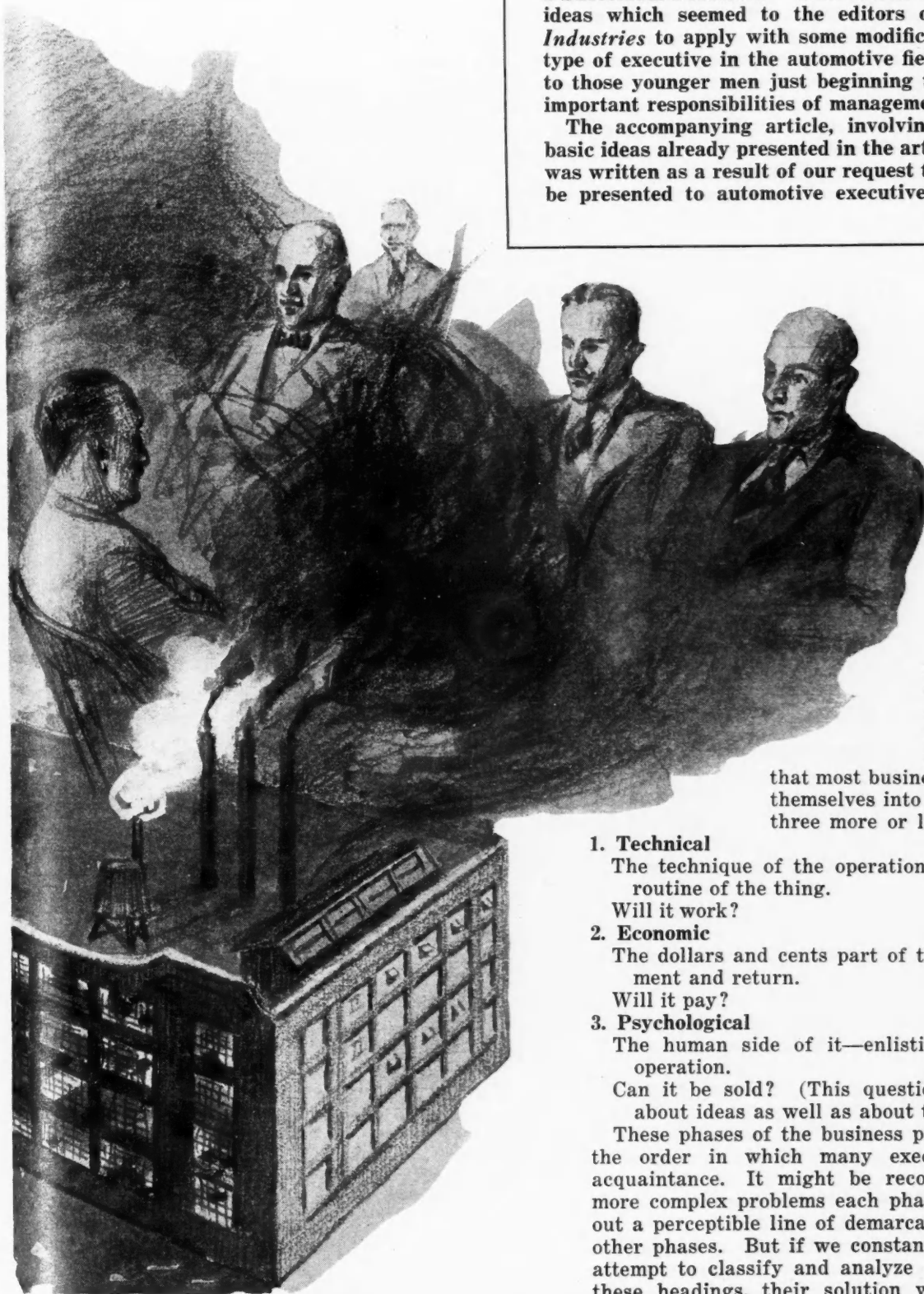
This requires broader and better training, and successful training results only where there is a receptive attitude. The executive who "knows it all," in his opinion, or who "is afraid of showing his ignorance" finds it difficult to increase his fund of knowledge or to broaden his point of view.

Men who know considerable generally are the most willing to confess they are but at "the beginning of



to Intangibles

on brain-power of executives.
broader and better training.



MR. RUTHERBURG has gained a wide reputation in the automotive field, not only as a practical operating executive, but also as having an unusually clear understanding of the human factors in industrial relationships.

He has been active for over 12 years in the development of foreman-training activities and other phases of the general effort to develop future executive talent in the industry. Recently he wrote for the *Foreman's Magazine* an article entitled "The Business of Being a Successful Foreman." That article contained many ideas which seemed to the editors of *Automotive Industries* to apply with some modifications to every type of executive in the automotive field, particularly to those younger men just beginning to share in the important responsibilities of management.

The accompanying article, involving some of the basic ideas already presented in the article mentioned, was written as a result of our request that those ideas be presented to automotive executives.

knowledge." It is the big mind that always is asking:

"Why?" and "Who says so?" One fact is worth more than many opinions.

It may be helpful to attempt an analysis of the basic nature of problems confronting many executives. The thought has been impressed upon me

that most business problems resolve themselves into one or two or all of three more or less distinct phases:

1. Technical

The technique of the operation—the mechanics or routine of the thing.

Will it work?

2. Economic

The dollars and cents part of the problem—investment and return.

Will it pay?

3. Psychological

The human side of it—enlisting enthusiastic cooperation.

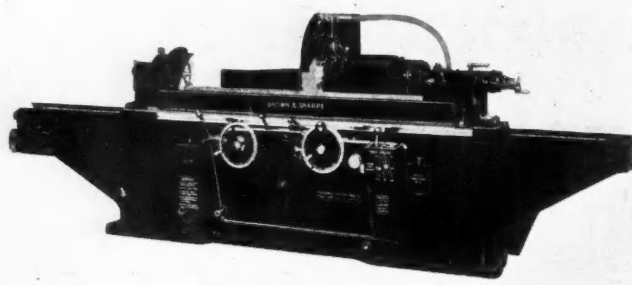
Can it be sold? (This question should be asked about ideas as well as about things.)

These phases of the business problem are listed in the order in which many executives make their acquaintance. It might be recognized that in the more complex problems each phase may merge without a perceptible line of demarcation into one of the other phases. But if we constantly and consistently attempt to classify and analyze our problems under these headings, their solution will be simplified.

NEW DEVELOPMENTS—Automotive

Plain Grinding Machine

THE Brown & Sharpe Mfg. Co., Providence, R. I., has added a No. 35 plain grinding machine to its line. This machine is similar to the three other machines of this group except in size, the centers tak-



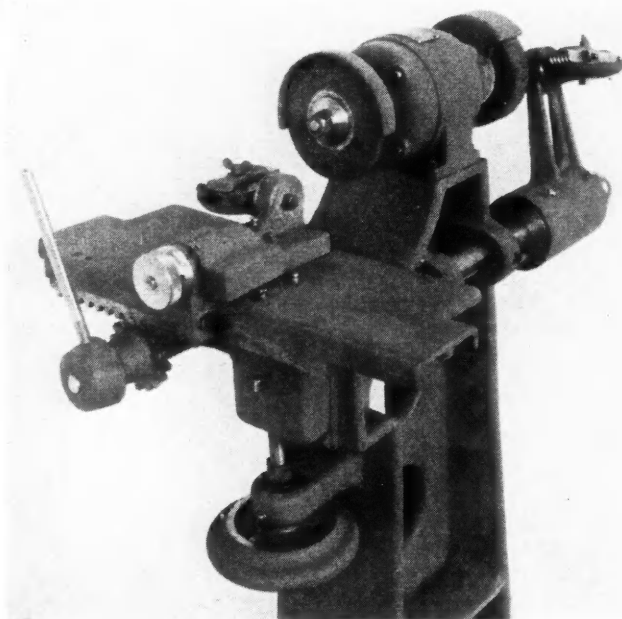
Brown & Sharpe No. 35 plain grinding machine

ing work 72 in. in length. The floor space dimensions are 74 by 189 in.

The new machine has the features of the others in the line, such as wide range of table and work speeds; high table speeds; conveniently grouped controls; changes of speed in the independent work drive and table movement, made through sliding gears and individual levers; complete lubrication of wheel spindle and main mechanisms by gravity flow of oil from a reservoir, and a choice of overhead countershaft drive by a single pulley, or a motor-in-base drive by one motor. The horsepower required to drive the machine is from 15 to 40, depending upon the work.

J. & L. Chaser Sharpener

TO provide quicker and more accurate means of sharpening chasers for the J. & L. automatic die



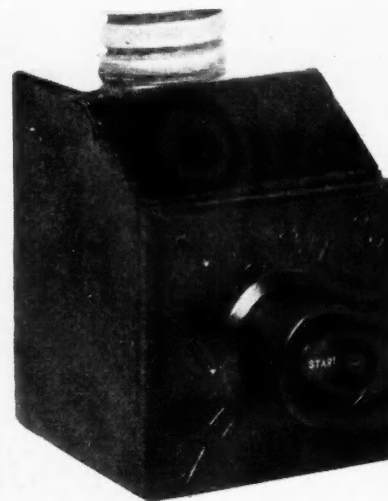
J. & L. chaser sharpening device

heads, Jones & Lamson Machine Co., Springfield, Vt., has introduced a special grinder consisting of a 1/4-hp. motor mounted on a base of the pedestal type. The motor is of ball bearing construction, 3450 r.p.m., 110-volt, 60-cycle, unless otherwise specified.

The two sides of the grinder are designed to take independent set-ups in order to provide for the two distinct grinding operations. On each side are micrometer adjustments reading in thousandths of inches. This includes the vertical elevating screw.

Lincoln Safety Push Button

THE Lincoln Electric Co., Cleveland, Ohio, has brought out a new safety push button in which a ball top "start" button is contained inside a large "stop" button which projects over the start button, thus protecting the latter from accidental contact. The start button can only be operated by the tip of a thumb or finger inserted inside the stop button, while the stop button can be operated by a finger or palm of the hand.



Lincoln safety push button

The inner mechanism is enclosed in an arc welded steel box with all insulating parts of molded Bakelite. Four screws hold the molded black Bakelite face plate to the container and by removing these the entire operating mechanism can be removed from the case for wiring.

McConnell Windshield Cleaner

A NEW, electric windshield cleaner with one-hole installation, has been developed by McConnell Mfg. Co., 190 Emmett St., Newark, N. J. It is made in five models: for standard inside mounting, for outside mounting, a special slip-on type for Ford Model A open cars, a heavy duty type for bus and truck and a double cleaner built in one unit.

Covert Four-Speed Transmission

COVERT GEAR & MFG. CORP., Lockport, N. Y., has recently produced a four-speed unit power-plant transmission known as Model H4C, suitable for a motor of 155 ft.-lb. torque. It carries a Covert standard four-plate multiple-disk clutch with both internal and external disks of the serrated type, and it can be arranged to accommodate any of the standard designs

Parts, Accessories and Production Tools

of single or multiple clutches. No. 3 S.A.E. flange is standard with a No. 4 as optional equipment. Sliding gears on the main shaft have long hubs and the countershaft low and reverse gear is made integral with the countershaft. The transmission has a standard power take-off opening and provision for speedometer drive is furnished. Gear ratios are: first, 4.92; second, 2.73; third, 1.75; fourth, 1.0; reverse, 6.08.

Hill-Curtis Buffing Lathe

A NEW electric polishing and buffing lathe, designed primarily for buffing automobile fenders but suitable for a wide range of work requiring maximum working room for two operators, has been developed



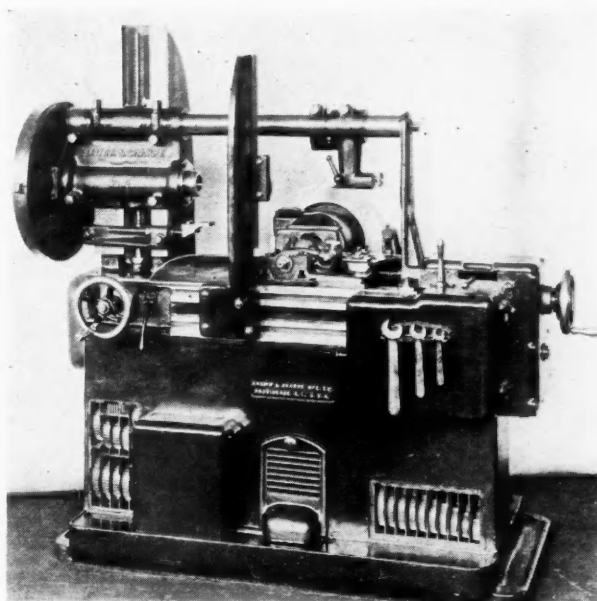
Hill-Curtis "Rite Speed" electric polishing and buffing lathe

by Hill-Curtis Co., Kalamazoo, Mich., and is known as the "Rite Speed" electric lathe. The machine has an 80-in. spindle driven with Multi-V Texrope drive, so that any desired spindle speed can be obtained. The speed is changed by changing motor pulleys. The motor is equipped with a Hill-Curtis air cleaner and is mounted on the back of the pedestal. Push button remote control with automatic motor starter and thermal overload protection, and spindle lock, are standard equipment. Timken tapered roller or Fafnir ball bearings are optional. Machine can be furnished with 3, 5, 7½, 10 or 15 hp. motors for either alternating or direct current.

Automatic Gear Cutter

A NUMBER of new features have been incorporated in the No. 3 automatic gear cutting machines manufactured by Brown & Sharpe Mfg. Co., Providence, R. I. The capacity of the machine is increased to cut four diametral pitch in cast iron, five in steel, and to handle work up to 36 in. diameter and 11 in. face.

The machine is now of the motor-in-base type with its power transmitted from the motor to the machine by means of a silent chain and sprockets. A short minimum stroke of ½ in. for the cutter slide allows economical cutting of small gears and other parts with narrow faces. The work spindle slide is positively held against the upright ways at four points, two surfaces taking

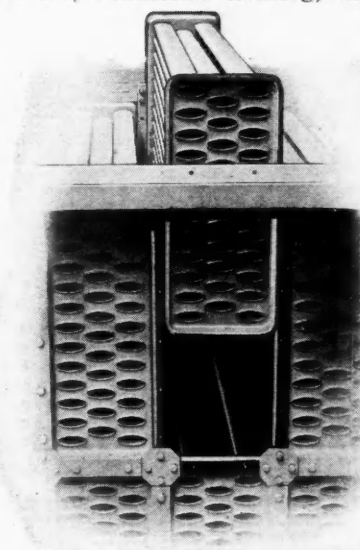


Improved Brown & Sharpe automatic gear cutting machine

direct cutter pressure. The oiling system has been simplified and improved, effecting a material reduction in the time required for oiling. The cutter spindle is driven by a bronze driving gear from a worm sliding on a multiple-splined horizontal driving shaft, thus assuring a positive drive that eliminates greatly any tendency for backlash to develop.

Oval-Tube Air Heater

A N oval-tube type of air heater for preheating combustion air, industrial heating, drying, etc., is

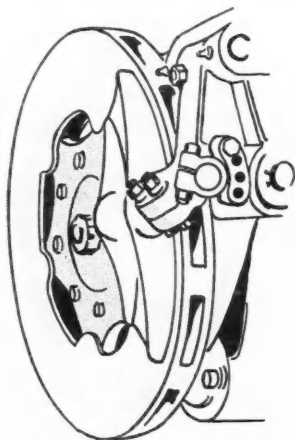


Shaw-Perkins industrial air heater

made by the Shaw-Perkins Mfg. Co., Pittsburgh, Pa. The heater is designed to make use of the waste heat of boiler stack gases. Owing to the oval form of the

air tubes, the loss of draft due to the heater is said to be small. The tubes are staggered, so that their entire surface is scrubbed by the hot gases and the rate of heat transfer is high. Any heating element can be conveniently installed or removed through the two sides of the heater which do not connect with either air or gas passages. Soot is removed from the heater by means of steam soot blower jets.

Tru-Stop Brake Improvements



Tru-Stop disk brake, showing adjustment means

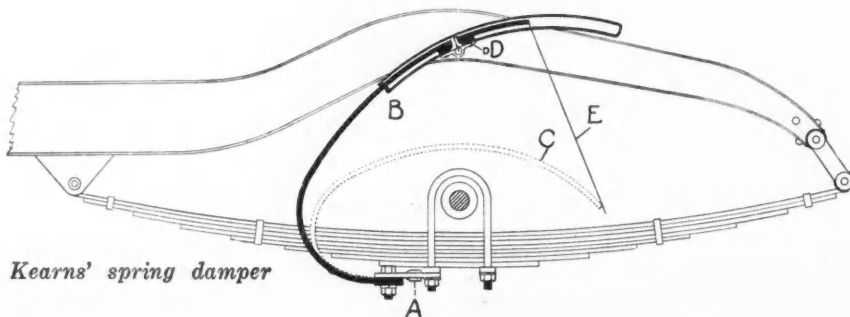
A NUMBER of improvements have been made recently by the American Cable Co., Bridgeport, Conn., in its Tru-Stop disk brake, which is used as emergency brake on a large number of commercial vehicles. The operating shaft, which carries the crank that presses the shoes against the disk, is now provided with roller bearings. An adjusting crank, by means of which compensation can be made for wear of the lining, has been put in. The disk is made of two forg-

ings with ventilating vanes forged in, which are riveted to a malleable spider. The disks are statically and dynamically balanced to within $\frac{1}{2}$ in.-oz.

The Brown-Lipe Gear Co. and Fuller & Sons Mfg. Co. now design their truck and bus transmissions so the Tru-Stop brake can be mounted on the housing and requires no frame cross-member for mounting.

Kearns' Auto Bump Control

A SPRING damper of a new type has been developed and placed on the market by Charles Maxwell Kearns of Beavertown, Pa. Referring to the illustration, secured to the spring mounting through a cast-steel bracket *A* is a check spring *B* which bears against a brake or block of friction material *D* pivotally supported on the chassis frame. As the chassis spring deflects under increasing load, check spring *B* is compelled to move over the brake block *D*, whereby a damping action is produced. This damping action, of course, depends upon the pressure between spring *B* and block *D* due to the spring force of *B*, and it also depends upon the motion of *B* relative to *D*. The position of the check spring when the chassis spring is fully compressed is



Kearns' spring damper

indicated by the dotted lines *C*. The device functions during both the deflection and the rebound of the chassis spring and is known as a two-way control.

"Kleen Oil" Filter

THE K-O Mfg. Corp., Cincinnati, Ohio, is distributing through Earle V. Hennecke, Inc., 247 Park Ave., New York City, a new filter, known as the K-O or "Kleen Oil" filter.

The filter is connected to the oil line and oil from the crankcase is brought by the oil pump to the top of the filter, where it is sprayed evenly around the filtering cups. The oil is filtered through two felt cups and two fine screens. Sediment and water gravitate to the sediment trap for easy removal through the drain cock. Baffle plates on the trap disk prevent churning or swirling of the oil so that sediment sinks quickly to the bottom.

German Industry Discussed

A CRITICAL discussion of conditions in the automobile industry and trade forms the text of a book entitled *Automobilia*, by L. Betz, published by Ernest E. Rulf, Berlin. It contains sixteen articles on subjects which are ordinarily dealt with in periodical publications, but the author says he preferred to publish them in book form because he wanted to assume undivided responsibility for what he had to say and did not want to see them blue-penciled. He expresses his utter disgust with the way in which German automobile publications are being conducted but allows that their shortcomings are in part due to the fact that they receive very little support from the manufacturers.

One chapter deals with imports of foreign cars into Germany and the author deplores that this traffic has assumed such a large volume, for which view one cannot blame a member of the German industry. Among the reasons for the large sales of foreign cars he mentions the predilection of Germans for everything exotic and unfair methods of advertising of representatives of foreign cars.

Throughout the book, whether discussing conditions at home or abroad, the author speaks his mind with the utmost freedom, for which he is to be commended. In following such a course, however, one can never be too sure of his "facts," and in this respect the author has failed to exercise the necessary care. For instance, in criticising a Berlin dealer for referring in an advertisement to the Lincoln as the highest priced car built in America he says: "It is far from being that, and I could name two dozen car makers whose prices are sky-high above that of the Lincoln." Such reckless statements naturally shake one's faith in the reliability of the author generally. He also makes the statement that steam trucks are constantly coming into wider use in America. There may be a steam truck in use somewhere in America, but it is doubtful.

The book deals with a great variety of problems interesting the automobile manufacturer, such as export and export possibilities, automobile shows, Ford and Fordism, standardization and simplification, continuous production, problems of automobile design, etc.

Balloon Tires and Shock Absorbers Prevent Road Corrugations

Tests at Washington State College indicate that "washboard" highways are due to car vibration which can be damped out. Greatest damage done at speed of 20 m.p.h.

By H. V. Carpenter and H. J. Dana

Engineering Experiment Station, Washington State College



THE study of "washboards" in highways undertaken some time ago in the Engineering Experiment Station of Washington State College has been progressing rather slowly. First, we studied the relative motion of the rear axle and the body of a Ford car. This showed the greatest axle vibration to come at about 17 to 20 m.p.h., thus indicating a resonant condition. Other evidences of this were found in this and other cars. Complicating vibrations prevented accurate study in this way, so later, a laboratory model was made. In this model conditions in the car and road could be imitated without effects coming from the front axle, and definite results were reached, as outlined in Station Bulletin No. 19, which is now being distributed.

There remained the need for actual road tests made in such a way that washboards could be made by a car operating under known speed and other conditions. This has been done in part during the past summer. A circular track banked for a speed of 20 m.p.h. was graded up and surfaced with crushed basalt. A Ford Model T equipped with high pressure tires and no shock absorbers was tried, and it was found that washboards would be definitely formed in about 100 trips of the

car at 20 m.p.h. with the tires pumped up to 55 lb. p. sq. in. Reduction in either the speed or the tire pressure reduced the speed of formation of the corrugations.

Addition of shock absorbers at all four wheels eliminated all tendency to form washboards, at least at speeds up to 20 m.p.h., the speed limit of the track. Addition of balloon tires also prevented the formation of washboards at any speeds up to our limit of 20 m.p.h. Attempts to form washboards failed although the car was driven over the track some 3600 times. Balloon tires were tried over the track after washboards had been well started with the high pressure tires. It appeared that the balloons had no appreciable effect in either building up or tearing down the corrugations.

Tearing Down Process

The mathematical analysis and the laboratory tests described in Bulletin No. 19 indicate that at some speed not far above resonant speed for the washboards, a car should begin to tear down instead of build up the corrugations. It has been impossible to check this with the small track used during the past summer, but it is hoped that the questions remaining can be answered next summer. These questions are as follows: Will balloon tires cause washboards at any ordinary speed? If so, will shock absorbers prevent it? Are shock absorbers needed on both front and rear to prevent the trouble?

Our studies have emphasized the fact that the general public does not appreciate the tremendous expense of controlling the washboards. Our tests show that highway maintenance could be reduced to a very small fraction of the present figure if washboards were eliminated, because the grading or planing needed to control them is not only the principal item in current maintenance but it is necessary in this planing to tear down large quantities of well-compacted macadam and to maintain a loose, dusty road surface which causes rapid loss of road material. These things, when taken with the annoyance and discomfort caused to travelers and the added upkeep of cars, make up an enormous total which we are all helping to pay.

If further tests prove that balloon tires, or shock absorbers, or both combined, are effective in preventing washboards at the usual highway speeds, then, if each driver with high pressure tires and no shock absorbers were required to pay a toll commensurate with the damage he causes, the cause would rapidly disappear and the guilty driver would soon save his cost for balloons or snubbers in reduced upkeep on his machine

Your Labor Turnover Rate—How Does it Compare With *Average?*

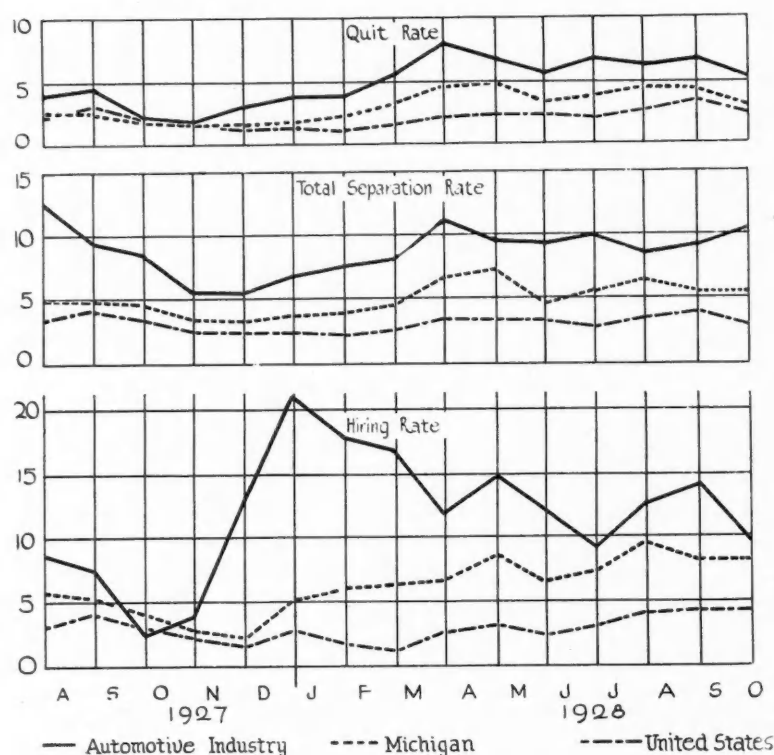
Valuable information for guidance of production and personnel managers furnished by study of factory statistics on "hiring and firing" in Michigan and U. S.

IN view of the ever-increasing importance of the labor question to the automotive industry, studies which are being made as to the rates and reasons for turnover among factory employees offer valuable information for the guidance of production and personnel managers. A comparison of factory labor quit rates, total separation rates and hiring rates are given in accompanying charts for representative automotive companies located in Michigan, for companies representing all Michigan industries and for the United States.

This work of collecting and compiling factory labor turnover data was instigated by The Metropolitan Life Insurance Co. and the turnover data for the United States shown on the charts has been supplied by that organization. Assisting them in Michigan, the Bureau of Business Research, University of Michigan, under the direction of Prof. O. W. Blackett, has been collecting similar data.

The method employed has been to submit to contributing companies each month a report on which is returned the average number of employees during the month, the number quitting voluntarily, the number discharged, the number laid off because of lack of work and the number hired.

From these figures, the Bureau computes labor turnover rates by expressing the separations and hiring as percentages of the total number employed. Reports received include those of 95 plants employing a total of over 113,000 employees. Of these, automobile and accessory plants comprise 24 with more than 73,000 employees. With such a small sample of Michigan industry or of the Michigan automotive industry, the Bureau points out that turnover rates reported may not be accurate indications of actual con-



Comparison of factory labor quit rates, total separation rates and hiring rates

ditions but there is no doubt that they do provide much more reliable information than has been available heretofore.

After more than a year's experience with the collection and tabulation of turnover data, the Bureau has arrived at certain conclusions with regard to what the figures indicate which should be of value in assisting individual concerns that wish to interpret their own turnover rates in the light of the group or sectional experience.

Labor turnover rates differ between regions and between industries so that the average for a state or for an industry cannot always be set up as the desirable standard for an individual plant.

The Bureau finds, for example, that the quit rate in Grand Rapids is normally lower than in Detroit, whereas Michigan rates, in general, are higher than those for the country at large. This does not necessarily imply unfavorable conditions, however, but merely shows that labor differences exist.

In general, the Bureau believes that a company's quit and discharge rates measure its personnel policy and the efficiency of its personnel management.

The following suggestions are made by the Bureau for comparing a company's rates with standard rates: A company quit rate more than 50 per cent below or 80 per cent above average should be regarded as unusual.

The most significant comparisons should be made with the rates for the district and industry in which the company operates rather than with general state and national averages.

Annual and semi-annual analyses should supplement monthly study of rates since one month's data are affected by those of the previous month.

Another study that has an important bearing on

the general subject of labor turnover has just been concluded by the National Industrial Conference Board, 247 Park Ave., New York. This deals with the improvement, regulation and humanizing of employer-employee relations in industry and shows that organized programs to these ends, originally associated almost entirely with large organizations, of late have spread into the smaller plants to a surprising extent. This development, in the view of the Board, is "one manifestation of the general tendency away from the haphazard and toward the organized way in all detail of industrial operation."

The disclosure of the expansion of industrial relations activities among small plants—those employing up to but not exceeding 250 wage earners—has added significance because the small manufacturing plant numerically still is the typical unit in America, their total number constituting 96½ per cent of all manufacturing establishments. As regards the number of workers affected, however, the place of the small plant is not as important as its numerical superiority would imply, as the 3½ per cent with more than 250 wage earners each, employ more than 53 per cent of the total number of wage earners.

"A broader attitude toward human relationships and a constructive, carefully considered program of industrial relations activities," in the view of the Conference Board, may possibly "be an even greater need in small plants than in large establishments." Moreover, plants in which industrial relations programs

are in effect, on the average pay higher wages than those which do not engage in such activities, the study discloses, indicating that industrial relation activities properly managed not only are not conducted at the expense of the payroll, but yield a definite return in productive efficiency even though it may not be accurately measurable in dollars and cents. This was found to be true in the case of small establishments although the cost of operating industrial relations programs was found to be proportionately higher with decreasing size of establishments.

Not all varieties of industrial relations activity, however, are practicable in small plants. The small establishment may not have the required financial resources to put a given plan into operation, the necessary space or equipment may be lacking, or the personnel may be too small to permit participation in a project designed for large numbers of wage earners.

For one or another of such reasons, group insurance, mutual benefit associations, plant lunch rooms, industrial pensions, dispensaries, clinics and hospitals, foremen-training courses and other educational classes, athletic programs, employee housing and stores do not easily lend themselves to operation by the small manufacturing unit. On the other hand, financial incentive plans, bonuses for length of service, attendance or punctuality or quality of work, and profit-sharing plans are being successfully applied in small establishments.

Fuller Develops New Type Truck Clutch

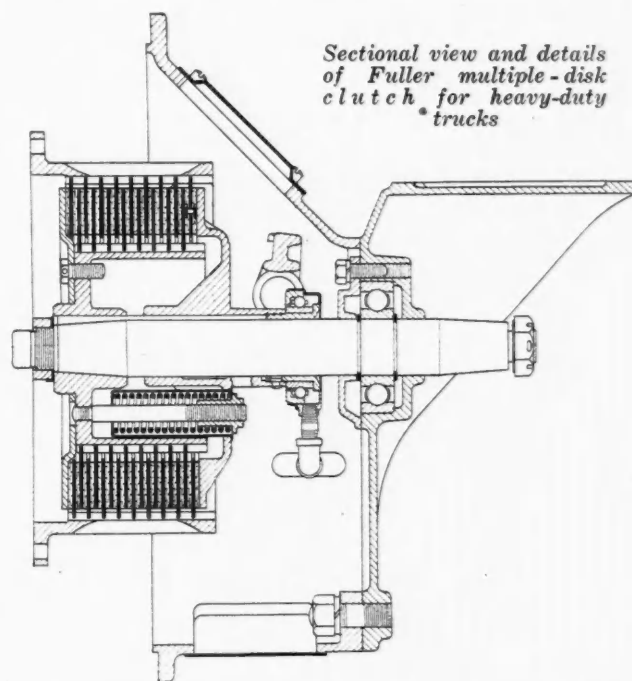
A NEW type of multiple-disk clutch designed specifically for heavy-duty truck use has been developed by Fuller & Sons Mfg. Co. and is now offered the original equipment market. Attention has been given to ease of servicing, lubrication and the provision of overload capacity.

Disassembly of the clutch is facilitated by the use of a heavy steel stamping for the front pressure plate, which attaches to the hub with six ¾-in. cap screws. After these cap screws have been backed out part way, the retainers of the six coil springs, used in place of a single large pressure spring, bottom against the hub, allowing the free removal of the cap screws and of the complete set of driving and driven disks. The hub, moreover, is fitted to a tapered section of the clutch shaft by a key and nut, so that the entire clutch may be removed from the clutch shaft without the use of an arbor press.

Lubrication for the pilot bearing is provided for by inserting a Zerk fitting at the end of a drilled passage in the clutch shaft. A longitudinal slot in the rear pressure plate hub provides clearance for this fitting, so that it will not contact with the hub in the release or engaged position, or when the facings are worn down. The clutch throwout bearing is also positively lubricated by a fitting projecting through the side of the bell housing.

Overload capacity is provided by increasing the 8-in. normal size of the clutch to 8½ in. and by providing for the use of 18 facings in the largest size clutch.

Mention has been made already of six coiled pressure springs in place of a single large one, the object being a better distribution of pressure. To provide against the plate cocking or binding if the springs should be unequally adjusted, a long pressure plate bearing is provided on the shaft. Another interesting feature is



the use of the toothed internal as well as external drive.

Crimped inner disks and slotted clutch drums, two features which have been common to Fuller clutches for a number of years, are found also in this unit, the crimped disks providing for smoother engagement as well as accelerating clutch release, and the slots in the periphery of the drum allowing the abraded clutch facing material to be thrown out by centrifugal force, while also providing ventilation for the cooling of the clutch proper.

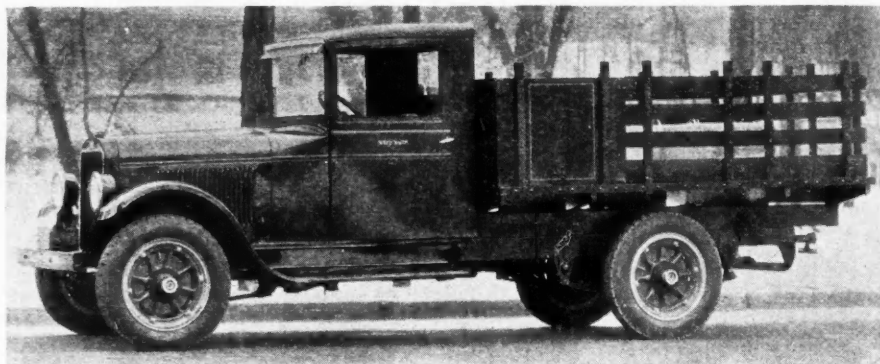
Reo Modifies *Flying Cloud* Engine for New Speedwagon Model

Flywheel is made heavier, water pump and fan are larger, cylinder heads are of lower compression and oil pan is provided with integrally-cast cooling fins.

By A. F. Denham

THE change to passenger car speeds in commercial transportation, which is being consummated at the present time, has brought with it fundamental changes in the design of commercial vehicles. During the past year or two there has been a marked tendency to deviate from former truck and bus specialized design and revert to passenger car engineering practice in order to make the needed high road speeds possible. However, in the cases of a number of designs on passenger car lines, evidence for the need of further changes or for a compromise has made itself felt.

For instance, passenger car engine flexibility is essential, but the powerplants also must meet other requirements which are peculiar to truck operating conditions. Bearing this in mind, the Reo Motor Car Co. started with the basic design of the Reo Flying Cloud Master engine and instituted an investigation to determine what modifications were needed in it



New 1 1/2-ton Reo Speedwagon with stake body

to adapt it for truck work. As a result of this inquiry a design was evolved which, while basically unchanged, shows a number of important modifications. Comparing bus and truck requirements with passenger car needs, it was found that commercial vehicle powerplants require:

1. A larger rotating mass (inertia) between engine and transmission to allow for the greater variations in commercial propeller shaft loads.

2. A higher rate of flow through the water jackets and generally increased cooling capacity.

3. Better cooling facilities for the lubricating oil.

4. Slightly different fuel distribution characteristics.

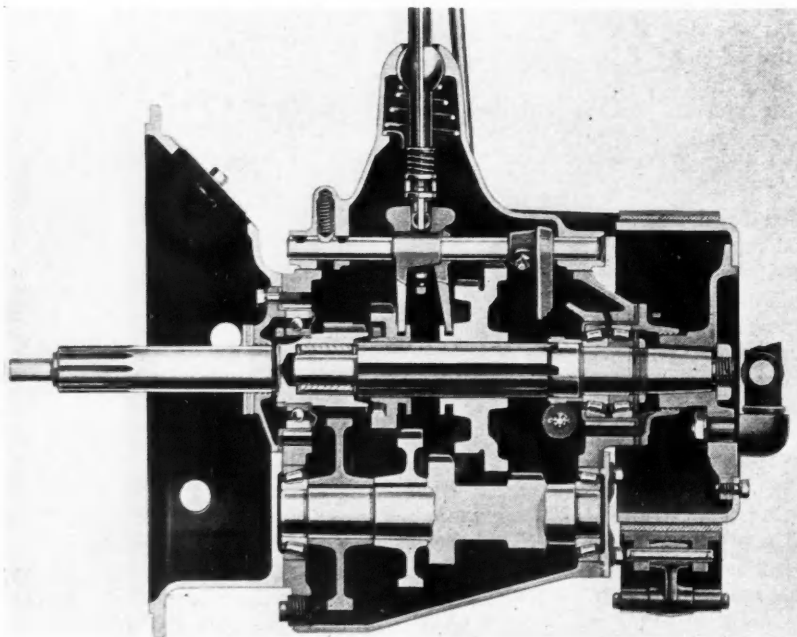
5. Lower compression pressures for freedom from detonation under heavy-load conditions and to reduce crankshaft bearing loads and increase engine life.

6. Larger generators for buses.

7. A greater range of transmission reduction ratios.

Other passenger car engine characteristics appeared to be equally desirable for trucks and buses, including such items as aluminum alloy pistons for smoothness and greater flexibility, seven-bearing crankshaft, etc.

As a result, the new Reo Speedwagon engine, called the "Gold Crown," has a heavier flywheel than its passenger car prototype. It is fitted with an aluminum alloy oil pan provided with integrally-cast cooling fins. The wa-



Section of four-speed transmission

Reo Speedwagon Specifications

	Trucks					Buses	
	FA*	FC†	GA	GC	GD	FB	GB
Wheelbase	137	152	163	179	134	156	179
Capacity	3000	4000	6000	600	2 cu. yd. (Dump)	12p	21p
Rear Axle Ratio	5.2	5.77	6.22	6.22	7.0	5.2	6.22
Tires—							
Front	32x6	30x5	32x6	32x6	32x6	32x6.75	34x7.50
Ply	8	8	10	10	10	Balloon	Balloon
Rear	32x6	30x5	32x6	32x6	32x6	36x8.25	34x7.50
Ply	8	10	10	10	10	Balloon	Balloon
Type	single	dual	dual	dual	dual	Bus	Bus
Springs, Front—							
Length	38	38	38	38	38	38	38
Width	2½	2½	2½	2½	2½	2½	2½
Rear—							
Length	50	50	50	54	54	54	54
Width	2½	2½	3	3	3	2½	3
Frame							
Depth	6 1/16	6½	7	8	7	6½	8
Thickness	3/16	7/32	¼	7/32	¼	7/32	7/32
Spark plugs.....	No. 8 Metric	Clutch					
Control	Governor	Transmission. Unit, selective					
Oil Capacity	6 qts.	Forward Speeds.....					
Electric System	2-Unit	Front Axle					
Headlamps	Tilt-Ray	Wheel Bearings.....					
Battery	120 amps. (trucks)	Springs					
	240 amps. (buses)	Drive					
Wheels	Malleable Iron	Final Drive					
Emergency brake...	Transmission	Chassis Lubrication....					
		Magazine					

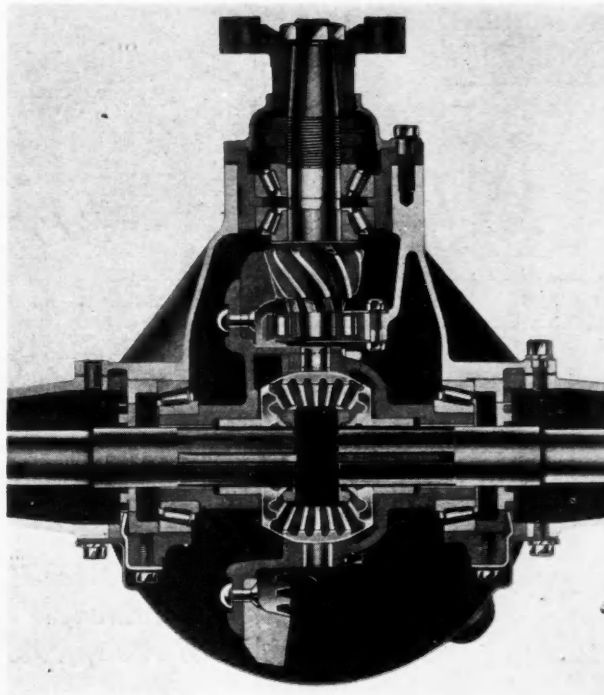
Radiators, Cellular (1½-ton and 12-p. bus).....Tubular all other
Rear Axle type, full floating (3-ton and 21-p. bus), semi-floating all others.

Standard equipment on all models includes a windshield wiper with cab purchased, a dash engine thermometer, a speedometer, an oil filter, and an air cleaner.

Body dimensions, including mounting dimensions, remain practically unchanged from those of the previous series.

* Made as FE with a wheelbase of 152 in. and as FF with a wheelbase of 156 in.

† Made as FD with a wheelbase of 168 in.



Rear axle center with straddle-mounted pinion shaft

ter pump is larger, as is the fan. A slightly different Schebler carburetor is used, involving minor manifold changes; the cylinder heads are of lower compression, and transmissions are of the four-speed type.

The engine, which has six cylinders, has a bore and stroke of 3¾ by 5 in., giving a displacement of 268.3 cu. in. and develops 67 hp. at 2800 r.p.m. It has L-head cylinders, aluminum-alloy pistons, semi-automatic ignition and vacuum fuel feed.

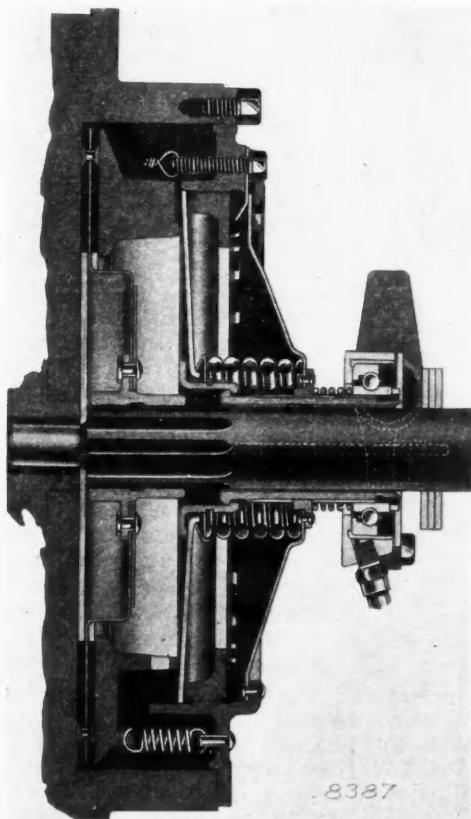
This applies to all new chassis, as listed in the accompanying table. Clutches are unchanged from the previous models. In the four-speed transmission, however, changes have been made to increase their length of life. These include the adoption of Timken roller bearings for countershaft as well as the main shaft.

Rear axles are unchanged, except on the 1½-ton models, in which a heavier construction is used, and which also include now a straddle mounting of the pinion. Internal hydraulic four-wheel brakes are standard equipment on all models. Steering gears are new, being of the worm and nut type.

In comparison with former Speedwagons, the new models all have a 4-in. longer wheelbase, the frames being longer ahead of the cowl to adapt them to the larger engines. Gas tanks are also larger. Those on the trucks are of 20-gal. capacity. The 12-passenger bus has a 30-gal. tank and the 21-passenger bus a 42-gal. tank.

Cabs, which are interchangeable on all truck models, are of all-steel construction, exceptionally roomy and comfortable.

THE International Association of Recognized Automobile Clubs at its last meeting approved the text of a model automobile insurance contract. It is said to incorporate the most effective clauses of the insurance practices of all the principal countries, and eliminates conditions that are contrary to the interests of the motorists.



Section through single-plate clutch

First with
the News

Reliable,
Accurate

News of the Industry

PAGE 210 VOLUME 60

Philadelphia, Saturday, February 9, 1929

NUMBER 6

January Production Shows Ford in Old-Time Stride

*Output for First Month of Year Exceeded only in 1923
—Present Rate, if Maintained, Will Mean
1,900,000 Model A's in 1929*

DETROIT, Feb. 7—With January production of Ford cars and trucks reported at 132,078 and the announcement that Model A engine No. 1,000,000 came off the line at River Rouge last Monday, it is apparent that Ford is once more back in his accustomed stride and has again become a real force to be reckoned with in motor vehicle distribution programs. His production for the month was 33 per cent of the total for the industry.

To find another January in which Ford production was equal to that of last month one must go back to 1923 when the total output was only 10,000 more than that reported for 1929. Total Ford production for 1923 was 1,990,000, so that if the production of last month is in line with the usual seasonal distribution of the year's output over the 12 months, continuing the pace already set will result in a total for 1929 of well over 1,900,000 cars and trucks.

In both 1924 and 1925 Ford output for January was about 130,000 and in each year total output was in the neighborhood of 1,850,000 vehicles. The first falling off in Ford production activities occurred in 1926 when, in the face of a record year for the industry at large, his output dropped some 300,000 units below that of the previous year.

During 1927 Ford production was stopped entirely with a total for the year of about 450,000. Last year was

(Continued on page 213)

Union Carbide Buys Plants

NEW YORK, Feb. 6—Union Carbide and Carbon Corp. has announced the purchase of the Compressed Gas Corp. of Denver.

Timken Declares Dividend

CANTON, OHIO, Feb. 5—Timken Roller Bearing Co. has declared an initial dividend of 75 cents on new stock, payable March 5 to stockholders of record Feb. 18, placing the stock on a \$3 annual basis.

McKinnon Expected to Accept G.M. Bid

BUFFALO, Feb. 7—Copies of a letter from B. W. Burtzell, president, McKinnon Industries, Ltd., St. Catharines, Ont., recommending that the proposed purchase of the company by General Motors Corp. be accepted, were in the hands of shareholders today. While the action of the shareholders will not be determined until Feb. 25, it is reported that the projected deal, based on three General Motors shares for four of McKinnon, has met with wide favor.

"Our directors, who hold a large amount of stock are depositing their own shares and they recommended that all other shareholders do likewise," Mr. Burtzell said in his letter. "A special reason which moves McKinnon directors to recommend acceptance of the offer is that General Motors Corp. contemplates manufacturing in Canada parts of the kinds which this company has been supplying." Among the products of McKinnon Industries, Ltd., are automobile gears, axles and parts.

McKinnon Industries, Inc., has an authorized capital of \$1,000,000 in preferred shares of \$100 par and 50,000 shares of no par common. Outstanding shares are \$954,100 in preferred and all the common. Net income for 1928, after charges, was \$381,551. The company, which was organized in 1925, has two plants in St. Catharines and two in Buffalo. Its products include automobile gears, axles, radiators, etc.

Improve 9753 Miles Federal-Aid Roads

WASHINGTON, Feb. 7—A total of 9753 miles of Federal-aid highways were improved last year through cooperation between the Federal Government and the 48 State Highway Departments, it was announced by the Bureau of Public Roads. This is an increase of 1478 miles, or 18 per cent, over the mileage improved in 1927.

South Dakota, with 578 miles, heads the list of states in the number of miles not previously improved with Federal aid, and North Dakota, with 490 miles, was second.

New York Aviation Show Houses Initial Exhibits

NEW YORK, Feb. 6—For the first time in nearly a decade New York witnessed today the opening of an organized aviation show at the Grand Central Palace. The event is sponsored by Aviators' Post 743, American Legion. It has not had the official sanction of the Aeronautical Chamber of Commerce. A total of 37 aircraft manufacturers are listed as having exhibits. The attendance on the first day was considered fair.

While most of the items on display were seen at the Chicago Aeronautical Show in December, a number of planes and engines are being exhibited for the first time. These include: three new planes and a new nine-cylinder radial engine designed and manufactured by Columbia Air Liners, Inc.; a monoplane designed and produced by the Crescent Aircraft Corp.; a new model air sedan powered with the Wright Whirlwind J-6 engine, and a new Savoia-Marchetti flying boat displayed by the American Aeronautical Corp.

Budd Plants Employing 10,000

PHILADELPHIA, Feb. 6—Budd Wheel Co. and Edward G. Budd Mfg. Co. are now employing about 10,000 men, with 7000 at the plant here and 3000 at Detroit. This is said to be double the amount employed some time ago.

Pierre duPont Quits G.M. Chairmanship

Succeeded by Brother Lamont
—Regular Dividends De-
clared—Record Earnings

NEW YORK, Feb. 7—Pierre S. duPont resigned as chairman of the board of directors of General Motors Corp. and his resignation was accepted by that body at its regular quarterly meeting this afternoon. His brother, Lamont duPont, a director and member of the finance committee, was immediately elected to fill his place.

The directors declared a regular quarterly dividend of 75 cents on new stock payable March 12 to stockholders of record Feb. 16, and a regular dividend on senior securities, payable April 8 to stockholders of record April 8.

Sloan Announces Earnings

Alfred P. Sloan, president, announced that sales and earnings of the corporation in 1928 established a record for the fourth consecutive year. Sales, excluding inter-company items, totaled \$1,459,762,906, an increase of \$190,242,233, or 15 per cent over 1927.

Preliminary figures showed net earnings, including equities in undivided profits of subsidiary companies, were \$276,468,108. This compares with \$235,104,826 in 1927, an increase of \$41,363,282 or 17.6 per cent. After preferred stock dividends this amounts to \$15.35 on common shares outstanding as of Dec. 31, 1928, and compares with \$12.99 in 1927.

Dodge Truck Plant Practically Ready

EVANSVILLE, IND., Feb. 2—The addition to the Dodge Brothers truck division plant of Chrysler Motors here is practically completed and will be ready for operation in about a week, according to A. E. Cooney, general manager. The new building, which is a part of the company's \$500,000 plant improvement program for 1929, provides 100,000 sq. ft. of floor space and will bring about an increase of 1800 persons in the plant employment force.

150 Trucks Daily

According to Mr. Cooney, the new building will permit a daily schedule of 150 completed trucks of from ½-ton to 3-ton capacity, 300 truck bodies for the plants in Stockton, Cal., and Detroit and 10 motor buses of the de luxe parlor car type of 15 to 21-passenger capacity.

The new structure is 300 ft. wide by 480 ft. long, with a concrete extension, sheltered by steel canopy, 55 ft. wide by 720 ft. long. Among the improvements in progress at the plant are extension of enameling ovens, facilities

for better handling of tires and rims for assembly and extension of the assembly line to 1000 ft. New machines and tools costing \$150,000 are to be installed in the shop, forge, mill and tool departments. The entire enlarged plant covers nearly 25 acres.

Chevrolet Opens Kansas City Plant

KANSAS CITY, Feb. 6—The new \$2,500,000 Chevrolet Motor Co. assembly plant here was opened formally today by W. S. Knudsen, president of the company. Mr. Knudsen, with a party of Chevrolet officials, arrived here this morning and in company with more than 1000 invited guests, which included public officials of the States of Missouri and Kansas and of Kansas City and Independence, Mo., together with officials of seven trunk line railroads, went to the plant for the opening ceremony.

The plant, which will serve eight states, will employ 2000 persons and has an estimated capacity of 9000 cars a month.

Plymouth Motor Denied Trademark Application

WASHINGTON, Feb. 7—Registration by the Plymouth Motor Corp. of its composite trademark for automobiles and structural parts, comprising a rectangular panel upon which appear the picture of a sailing vessel and the words "Chrysler Plymouth," was denied this week by the U. S. Patent Office.

Holding that the word Plymouth is geographical, the examiner ruled that exclusive rights to such word alone could not be secured and denied the registration application. The company appealed and First Assistant Commissioner Kinnan sustained the examiner.

Cutler-Hammer Buys Unit

MILWAUKEE, Feb. 7—Cutler-Hammer, Inc., announces that it has acquired the business of the Trumbull-Vanderpoel Electric Mfg. Co. of Bantam, Conn., which will be operated as a subsidiary under its present name. This purchase will add a complete line of meter service and safety switches to the present Cutler-Hammer line of motor control, wiring devices and allied electrical items.

Ford Prices Increased

DETROIT, Feb. 7—Ford Motor Co. today announced an increase in f.o.b. prices of the tudor sedan and business coupe of \$30 each. This increase appears to be in keeping with the trend of Ford prices which within the last 60 days have been increased on several models. The old price of the tudor sedan, as well as of the business coupe, was \$495 f.o.b. Detroit. The new price in each instance is \$525 f.o.b. Detroit.

Business in Brief

Written by the Guaranty Trust
Co., New York, exclusively for
AUTOMOTIVE INDUSTRIES.

NEW YORK, Feb. 7—Trade in winter wear has been active during the last week, and retail trade in general has been good in those sections of the country where transportation was not severely hindered by bad weather. Business conditions in New England during the last few weeks have been better than for the last fifteen months, and the general level of business activity at the beginning of 1929 was higher than in any corresponding period since 1925.

STORE SALES

The final reports of department store sales in the New York Federal Reserve district for December showed an increase of 2½ per cent., as compared with those in the corresponding month a year ago.

CRUDE OIL PRODUCTION

The average daily crude oil production in the United States for the week ended Jan. 26, 1929, was 2,663,100 barrels, which marks an increase of 18,900 barrels over the 2,644,200 barrels for the preceding week.

FREIGHT CAR LOADINGS

Car loadings for the week ended Jan. 19 totaled 931,880 cars, as compared with 914,187 cars the week before and 798,723 cars two weeks before. Each of these totals is correspondingly above that for the similar period in 1928.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices for the week ended Feb. 2 stood at 97.7, which compares with 97.8 the week before and 97.2 two weeks before.

BANK DEBITS

Bank debits to individual accounts outside of New York City for the week ended Jan. 30 were 5 per cent above those in the similar week in 1928.

STOCK MARKET

The stock market last week was highly irregular, with further advances in some of the specialties and a pronounced decline in a number of other securities. There was little indication of any trend, the tone being rather hesitant. Call money ranged between 6 and 8 per cent.

FEDERAL RESERVE REPORT

The consolidated statement of the Federal Reserve banks for the week ended Jan. 30 showed an increase of \$38,500,000 in holdings of discounted bills, after a contraction in this item for the three weeks preceding. The increase in the New York district was \$59,800,000. Member bank reserve deposits increased \$32,100,000, while holdings of bills bought in the open market decreased \$18,600,000. The reserve ratio on Jan. 30 was 69.4 per cent.

McCarty Resigns From Nash Motors

Leaves to Make Home in Northwest; Bliss Assumes Duties

KENOSHA, WIS., Feb. 4—Announcement is made by the Nash Motors Co. of the resignation of E. H. McCarty, director of sales and a director of the company. Although this news comes as a surprise to the industry, it has been known in the official Nash family that Mr. McCarty had been shaping his retirement plans for some time past.

"In point of fact, Mr. McCarty's resignation has been in my hands for nearly two years," said C. W. Nash, president, "and he has extended his period of association with us this long against his own desires and out of loyalty to my wishes and his work with the company. His departure from the organization is a matter of keen personal regret to me and to all those who have come to know him in the seven years he headed the Nash factory sales organization.

"For a long time Mr. McCarty and his family have greatly desired to make their permanent home in the Northwest and they are now availing themselves of this opportunity, although Mr. McCarty has made no plans as to his future activities beyond this. In his going there is a deep sense of real personal loss on our part, which is a tribute to the character of the man and to the confidence and friendship he inspired. With him go our very best wishes.

"In contemplation of Mr. McCarty's retirement plans, work was begun months ago looking forward toward the strengthening of the sales department. The personnel of this department has been strongly augmented and his place will not be filled, as the broadened sales activity of the Nash Motors Co. will be carried forward under the direction of C. H. Bliss, sales manager, long identified with the company, and who has been sharing with Mr. McCarty for several years the major responsibilities of sales work."

Hawks Sets Flight Record

NEW YORK, Feb. 5—In his Lockheed-Vega monoplane, "Air Express," powered by a Wasp engine, Capt. Frank M. Hawks landed at Roosevelt Field this afternoon after a record-breaking flight from Los Angeles in 18 hours 21 minutes and 59 seconds, cutting 39 minutes and 1 second off the record set by Arthur Goebel in the "Yankee Doodle."

Moore Incorporates Business

WATERLOO, IOWA, Feb. 4—E. L. Moore, manufacturer of bumpers, heaters and other automotive accessories, here, has incorporated his business as the Moore Mfg. Co. with \$50,000 capital.

Find Counterfeiting of Automobile Plates

SEATTLE, Feb. 2—According to officials of the Automobile Club of Washington, a number are now engaged in the counterfeiting and selling of California license plates here, and there is every reason to believe that they are doing the same with Idaho and Montana plates, on account of the cheaper automobile licenses in these states. A check by police here showed 767 cars with California plates.

Humphrey Scores Probe Into duPont Interests

WASHINGTON, Feb. 7—The investigation into the financial relationship between the E. I. duPont de Nemours Co., General Motors Corp. and U. S. Steel Corp., undertaken by the Federal Trade Commission 19 months ago, was sharply criticized by Chairman Humphrey in a minority opinion which accompanied the report of the inquiry made public by the Commission here this week.

The Commission reported that the duPont company virtually obtained control of General Motors and later acquired 100,000 shares of U. S. Steel stock for about \$14,000,000. No stock in the duPont company, however, was found to have been held by either General Motors or the Steel Corporation.

Pointing out that the inquiry was undertaken to determine the economic results of the inter-company stock transactions rather than under the anti-trust laws, Chairman Humphrey said that "from the beginning, the investigation has taken the character of a fanatical inquisition, rather than a quasi-judicial investigation."

Briggs in Ford Plant

DETROIT, Feb. 5—The Briggs Mfg. Co. has leased over one-half of the Highland Park plant of the Ford Motor Co., which includes nine buildings, with a total floor space of 1,649,080 sq. ft., according to an announcement by Ford company officials. The Briggs company will build all bodies for the coupe and fordor models and the Ford company will continue to build the tudor and roadster bodies.

Samuel Wylie Miller

Samuel Wylie Miller, consulting engineer of the Union Carbide & Carbon Research Laboratories, Inc., of Long Island City, since 1921 and well known both in the United States and in Europe as a pioneer in oxy-acetylene welding and an authority on its application, died on Feb. 3 at his home in Hollis, Long Island, N. Y., at the age of 62 years.

Chicago Show Had Smaller Attendance

Manufacturers Report Satisfactory Sales and Contacts with Dealers, However

NEW YORK, Feb. 5—In common with the New York show and with all of the local shows held to date, the Chicago National Automobile Show showed a falling off in attendance this year as compared with records established during the past few years. Several factors are considered as contributing to this condition.

Perhaps the most important factor is that attendance at the Chicago show two years ago attained such volume that visitors could not observe the exhibits in comfort. On this account many people satisfied with their present cars and others who attended previous shows out of curiosity were discouraged from attending shows more recently. This resulted, however, in a greater proportion of the visitors at the show being persons who could be considered live prospects.

Manufacturers generally profess themselves as well pleased with the sales resulting from this year's Chicago show and with the new dealers signing contracts in connection with the event. Dealers' meetings held during the week are generally regarded as the most satisfactory and enthusiastic dealer meetings ever held.

Many visitors were diverted from the National Show by the hotel exhibits of manufacturers, but these, because they were no longer a novelty, did not receive either the emphasis or the prominence that was given them last year. The larger manufacturers who were able to put on these side shows expressed the feeling that show week was in the main successful.

Form New Rivet Company

MILWAUKEE, Feb. 6—National Rivet & Mfg. Co. has been incorporated for the purpose of manufacturing brass, copper, aluminum and steel rivets used for brake bands and facings for machinery. The new company, which has its plant here, has acquired the U. S. Rivet & Mfg. Co., Mishawaka, Ind. The officers include: P. H. Dorr, president, and William Fleming, Jr., secretary and treasurer.

Plan New Truck Factory

WASHINGTON, Feb. 4—The Hayes-Anderson Motor Co. has acquired a factory site in Vancouver and will erect a plant for the manufacture of motor trucks ranging in capacity from 1½ to 10 ton, it was reported this week to the U. S. Department of Commerce. Production during the first year is estimated at 100 trucks, says the report, the 6, 9 and 10-ton models to be six-wheelers.

Grouped Interests Form Warchel Corp.

Capital Stock of Elite, Ward-Love and Channon to be Merged

ROCKFORD, ILL., Feb. 6.—The Warchel Corp., a holding company for the Elite Mfg. Co., Ashland, Ohio, manufacturers of garage and automobile service equipment; the Ward-Love Pump Corp., Rockford, Ill., manufacturers of power, rotary and agricultural pumps, domestic and industrial electric water systems, and the J. H. Channon Corp., Chicago, has been organized to acquire the total outstanding capital stock of each of these firms.

No changes in personnel of any of them will be made, except division of the Channon manufacturing activities between the Elite and Ward-Love plants. Combined earnings of the three companies last year were \$209,349, an increase of \$63,483 over the preceding year. The board of directors of the Warchel Corp. includes: F. N. Bard, president of the Barco Mfg. Co.; Vincent Bendix, president of the Bendix Corp.; Jerome P. Bowles, Jr., president of Bowles & Co., Inc.; Walter J. Buettner, treasurer of the Bendix Corp.; O. W. Johnson, president of the Ward-Love Corp.; Leroy J. Zorn, president of the Warchel Corp.; Marshall Arnold, vice-president of R. P. Minton & Co., and Lawrence Williams, vice-president of Bard & Co.

January Shows Ford Back in Old Stride

(Continued from page 210)

not so good as had been expected in many quarters but still Ford produced approximately 750,000 cars and trucks, almost doubling the 1927 total.

Starting with 7000 vehicles turned out in January, 1928, the Ford output steadily increased each month with the single exception of a slight setback in September, and was well over 100,000 in each of the last three months of the year. This adds conviction to the belief that the reported 132,078 production for last month—which on the basis of past experience points to a 1,900,000 total for the year—is an actual workable condition and was not due to any other condition than the gradual and continuous expansion of the Ford productive activities.

To produce 1,900,000 cars and trucks this year, later months will have to see the production of considerably more vehicles than were turned out during January. Based on the normal seasonal distribution of output, over 150,000 Model A's will need to roll off the line during February, about 190,000 in March and May and over 210,000 during April. It was reported that

Tax Deduction Seen in Using Automobile

WASHINGTON, Feb. 2.—A movie actor who uses an automobile to travel from his studio to the studio-ranch for the purpose of acting may deduct the cost of such operation in making his income tax return, the general counsel of the Bureau of Internal Revenue ruled in an opinion this week.

"Expenditures made by the taxpayers for the upkeep and operation of their automobiles should be allowed as deductions to the extent that they represent the cost of transportation actually required in carrying on their business," the opinion stated.

total employment at the Ford plants on Feb. 1 reached 130,231, a new high figure. This is an increase of 10,000 during the last month and compares with 89,758 a year ago when the Fordson plant had 54,206 workers on its payroll, the Highland Park plant 25,983 and the Lincoln plant 4834.

Falcon Plant Used for Willys Bodies

ELYRIA, OHIO, Feb. 6.—Production of the Falcon-Knight line of automobiles has ceased at the Falcon Motor Co. plant here, and the factory has been turned over completely to the manufacture of trucks and bodies for other Willys cars. It became known last week that the Falcon car had been taken off the market and that dealers have disposed of their stocks. The car has not been in production since Jan. 1.

E. A. Barnes, plant manager, said the company is now operating with about 1500 men, employment being increased by degrees. He expects a peak employment of 2000 or more. Barnes was not authorized to make any statement concerning the new manufacturing policy of the Willys subsidiary but indicated the plant had been turned over fully to manufacture of trucks and bodies. The new line of trucks includes a 1-ton and 1½-ton type. With the plant working on full shifts, production of trucks is 75 a day, while more than 200 bodies for Whippet and Knight cars are being produced daily, according to Barnes.

Fiat Forms New Company

PARIS, Feb. 2.—Fiat Co. of Turin, Italy, has formed the N.S.U. Automobile A.G. of Heilbronne, with a capital of 2,000,000 marks. This company has taken over the grounds and works of the Neckarsulmer Kraftfahrzeuge A.G.

January Production Reported at 400,000

Chevrolet Produces 86,000;
Others Set Up New High
Records for Month

DETROIT, Feb. 2.—Total production of motor cars in January will aggregate 400,000 vehicles it was revealed today when the Ford Motor Co. announced that it had produced 132,078 cars and trucks in January in its domestic assembly plants. The National Automobile Chamber of Commerce, which embraces all other automobile manufacturers, announced that production for the month among its members was approximately 267,939 motor vehicles. This figure, plus that of Ford, gives a total of 400,017.

Chevrolet Motor Co. produced approximately 86,000 cars and trucks in January, or about the same as in January, 1928. Chevrolet has scheduled a minimum of 125,000 cars and trucks for production in February. Production of the new Graham-Paige models in January totaled 5670, nearly four times the total in January, 1928, when 1,492 cars were built.

Packard Motor Co. established a new record for January with shipments totaling 4604 cars, as compared with 4019 in January, 1928, and 2150 in January, 1927. The February schedule is for about 4200 cars because of the shorter month.

Nash Motors Co. is producing 110 cars daily at Milwaukee, 110 daily at Kenosha, and 400 daily at Racine, a total of 620 cars daily, an increase of 30 per cent over the production schedule in effect at this time last year. Earnings for the current quarter ending Feb. 28 are estimated at \$2.50 to \$3 a share on common.

Hupp Motor Car Corp. shipped 3687 cars in January, against 3618 in January, 1928. Olds Motor Works shipped 7460 cars in January as compared with 1636 in the same month last year, an increase of 5824 cars, or 356 per cent. February schedule calls for the production of 10,800 cars. Buick produced 13,036 cars in January, as compared with 12,895 in December, and 17,047 in January, 1928. Shipments for the month were 13,009 cars, compared with 12,897 in the previous month.

Alexander T. Brown

SYRACUSE, Feb. 4.—Alexander T. Brown, aged 74 years, inventor and for many years president and chairman of the board of the Syracuse Journal Co., died here Feb. 1 after a long illness. Mr. Brown was the founder of the Brown-Lipe-Chapin Gear Co., now a division of General Motors Corp., and the Brown-Lipe Gear Co., recently sold to the Spicer Mfg. Co. He was also president of the Franklin Automobile Co. for many years.

Men of the Industry and What They Are Doing

Whittingham is Appointed Detroit Gear Sales Head

H. H. Whittingham has been appointed sales manager of Detroit Gear & Machine Co., succeeding J. G. Monjar, who recently resigned.

Mr. Whittingham was formerly associated with Howard E. Blood, president of the company, when they were both in the Canadian Products Division of General Motors Corp. He has been production manager of Detroit Gear & Machine Co. since 1923.

Griffiths on European Trip

F. J. Griffiths, chairman of the board of the Central Alloy Steel Corp., has sailed for Europe where he will spend two months visiting leading steel works in France and Germany. He will devote considerable time at the Krupp works at Essen, studying new developments in connection with nitralloy and nirosta steels, for the manufacture of which Central Alloy Steel Corp. holds licenses in the United States.

Dyer Resigns from Ford

Carleton L. Dyer, advertising manager of the Ford Motor Co. of Canada has resigned to join Erwin Wasey, Ltd., advertising agency at its Chicago office. In three years with the Ford company Mr. Dyer has directed advertising in Canada, Australia, South Africa, India, Malaya and other territories.

Pleiss Visiting Budd

Paul Pleiss, foreign director of the Edward G. Budd Mfg. Co. and the Budd Wheel Co. in Europe, is now on a visit to the Budd Co. in Philadelphia. He plans to return to Europe on Feb. 16.

Lierman Directs Advertising

Arthur D. Lierman has been placed in charge of advertising for Mack Trucks, Inc., and also the sales magazine, Mack Bulldog. The advertising department of the company is now located at Anable ave. and Thirty-Fourth St., Long Island City, N. Y.

Toledo Trust Elects Acklin

W. C. Acklin, secretary and treasurer of Acklin Stamping Co., Toledo, was recently elected to the board of directors of the Toledo Trust Co.

Kyle Gets New Post

Lundy Kyle has been made Auburn factory representative contacting dealers on retail financing matters.

Buckley Sales Representative

A. R. Buckley is now district sales representative for the Auburn Automobile Co. for western New York.



Andrew W. Robertson

New chairman of the board, Westinghouse Electric & Mfg. Co.

Kingsley Gets Sales Post

Appointment of J. F. Kingsley as territory sales representative in eastern New York State of the AC Spark Plug Co., has been announced by J. C. Hines, district sales manager. Mr. Kingsley who, before his promotion, was office manager at New York, served six years in the AC experimental engineering department at Flint, Mich.

Olds Appoints McDermond

Dr. J. E. McDermond, who recently accepted the position of manager of the Mountain Motor Co. of Ogden, Utah, has been appointed special representative in the Utah-Idaho division of the Olds Motor Works with headquarters at Ogden.

Anderson Appoints Olds

Anderson Mfg. Co., which produced automotive spring covers, has announced the appointment of Everett L. Olds as assistant general manager of its plant at Cambridge, Mass., effective Feb. 1.

Edward R. Mason

DES MOINES, IOWA, Feb. 4—Edward R. Mason, a pioneer in the automotive industry and the financier of Fred Duesenberg's first car in 1906, died here at the age of 82 years as a result of injuries from a fall on icy sidewalk near his home. The first Duesenberg car was marketed as the Mason when Mr. Mason was associated in the Mason-Maytag Automobile Co. He later disposed of his interests to F. L. Maytag.

McQuay-Norris Reelects Norris as its President

W. K. Norris was reelected president of McQuay-Norris Mfg. Co. at the annual meeting of the company at the St. Louis general offices. Other officers elected are: L. A. Safford, vice-president; A. G. Drefs, vice-president and treasurer, and A. J. Mummert, secretary. C. C. Auten was appointed assistant secretary.

The following directors were chosen to serve during the coming year: W. K. Norris, L. A. Safford, A. G. Drefs, A. J. Mummert, C. R. Kalb, W. C. Winter of Chicago and John F. Green.

Lawrence Sails for Europe

John V. Lawrence, recently appointed European representative of the National Automobile Chamber of Commerce, has sailed on the Ile de France to take up his duties abroad. He will remain abroad traveling largely throughout Continental Europe and Great Britain until the end of the year, returning to this country in time for the 1930 National Automobile Show.

Baker Succeeds Neave

H. A. Baker, of Schenectady, has been appointed service manager of the International General Electric Co. with headquarters in New York City, Clark H. Minor, president, has announced. Mr. Baker succeeds C. F. Neave, who has become manager of the newly organized refrigeration department of the company.

Servel Promotes Nehrbus

At a recent meeting of the directors of Servel, Inc., which includes Hercules Products, Inc., builders of commercial car bodies, Fred P. Nehrbus, general manager, was appointed vice-president in charge of engineering and production. E. F. Thies was made production manager and W. D. Collins chief engineer.

Corbett Joins Fort Pitt

W. J. Corbett has resigned as secretary-manager of the Steel Founders' Society of America to become assistant to C. S. Koch, president of the Fort Pitt Steel Castings Co., McKeesport, Pa. Mr. Corbett is a graduate of Carnegie Institute of Technology, holding the degree of Metallurgical Engineer.

Windsor Appoints Mahoney

Helm Walker, vice-president in charge of sales of the Windsor Corp., has announced the appointment of J. Edward Mahoney as general manager of Windsor activities in Chicago.

Two Bus Line Deals Aggregate \$610,000

Franchises for Lines Operating
in Carolinas Obtained by
Separate Transactions

CHARLOTTE, N. C., Feb. 6—Two separate deals, aggregating \$610,000, completed here and at Greensboro, mark the largest step toward placing of the motor bus transportation industry under centralized heads in the history of the Carolinas. Each acquisition was made by a separate corporation.

The Carolina Coach Co. of Greensboro purchased for \$400,000 the franchises in North Carolina of the Southern Coach Co., controlled by the Southern Cities Utilities Co. of Philadelphia, according to an announcement by G. T. Elliott, president of the selling company. The routes involved connect Greensboro, Raleigh and Charlotte. The franchises were given to the original owners by the state without cost five years ago.

At Charlotte negotiations were completed for the purchase by the Queen City Coach Co. of the Inter-Carolina Bus Co. properties and franchises in this state and South Carolina for \$210,000. L. A. Love, of Charlotte, is manager of the Queen City company which operates buses over several of the most valuable routes in the two states.

Timken Officials Expect

New Mill Ready April 1

CANTON, OHIO, Feb. 6—The new tube mill which the Timken Roller Bearing Co. is constructing on a recently acquired site south of its present factories here will be ready for operation by April 1, officials of the company have announced. The mill, costing approximately \$1,000,000, is to be the first unit of a large new auxiliary plant.

Work on the building began about three weeks ago and is being pushed so rapidly that within a short time the entire structure will be under roof. Increased production of automotive steel on a huge scale is planned to begin as soon as the new plant can be put into operation.

To Sell Planes on Time

NEW YORK, Feb. 4—Aviation Credit Corp. has been organized with a capital of \$5,000,000 for the financing of instalment sales of airplanes. Howard L. Wynegar of Commercial Credit Corp. is president of the new corporation. Working agreements have been arranged with Wright Aeronautical Corp., Curtiss Flying Service, Inc., Keystone Aircraft Corp. and Travel Air Co. The company is capitalized with 500,000 shares of no par common stock of which 250,000 shares will be immediately outstanding.

Bendix Stations to Grow

CHICAGO, Feb. 5—Bendix Service Corp. will take over, it the near future,

the assets of the National Brake Service, Inc., which has an exclusive franchise from the Bendix Corp. and operates service stations at Chicago, South Bend and Detroit. These stations will be operated by the new company and their scope widened. It is planned ultimately to have a chain of stations across the country.

Alloy Steel Spring Adds 50,000 Shares to Stock

DETROIT, Feb. 5—At a special meeting Feb. 4 stockholders of the Alloy Steel Spring & Axle Co. authorized an increase of 12,500 shares of Class B no par common capital stock making the total authorized 50,000 shares. The stockholders also approved the offering of the additional shares to Class B stockholders of record Feb. 13 at \$19 per share in the ratio of one new share for each three old shares held on that date. The new stock will be listed Feb. 26. The present Class B stock will be traded ex-rights from Feb. 13 to the close of business Feb. 25, when the rights expire by limitation.

Nicol-Ford & Co., and R. W. Halsey & Co., bankers for the company, announce that this financing was made necessary to carry out extensive additions to plant and equipment to handle business expected to exceed that of 1928 by 100 per cent.

Auburn Earns \$1,133,459

NEW YORK, Feb. 6—Auburn Automobile Co. reports net income for the year ended Nov. 30, 1928, after all charges as \$1,133,459. This is equivalent to \$8.01 a share on common stock and compares with net earnings of \$1,278,533, or \$10.01 a share for the previous year. These figures do not include equity in subsidiaries earnings but only dividends received on holdings of Lycoming Motor preferred stock. Net sales were \$16,451,133, an increase over the previous year of \$1,632,059.

Buy Greenfield Tap Stock

GREENFIELD, MASS., Feb. 6—Acquisition of a controlling interest in the common stock of the Greenfield Tap & Die Corp. by Frederick H. Payne and associates in the present management of the concern is announced. Of late the stock has been quite active in the market and this move was made to assure continuance of the present policy of expanding the company's activities.

L. A. Young Earnings Up

DETROIT, Feb. 5—L. A. Young Spring & Wire Corp. reports 1928 net profit of \$1,875,664 against \$926,605 for 1927. Net sales for the year were \$13,187,040, against \$9,591,721 for 1927. L. A. Young, president, in a statement accompanying the annual report said that the first quarter of 1929 looks promising at this time and sales thus far indicate that earnings will run 25 to 30 per cent greater than those of a year ago.

Financial Notes

Ohio Seamless Tube Co. reports net profits of \$612,365 for 1928, equal to \$6.48 per share on the common stock. This compares with \$330,337 in 1927, or \$2.48 a share on the common stock.

The company has declared a dividend of \$1.00 per share on the common stock for the first quarter, payable Feb. 15 to stockholders of record Feb. 5. During 1928 the company paid \$3.50 per share on its common stock, and in 1927 it paid \$3.00 per share.

Packard Motor Car Co. has announced an extra dividend of five per cent on common capital stock, payable in cash on May 31, to stock of record May 11. A regular monthly dividend of two and one-half per cent on the common also was declared, payable March 30 to stock of record March 12; on April 30 to stock of record April 12, and on May 31 to stock of record May 11. The books will not be closed.

Black & Decker Mfg. Co. reports net profit for 1928 as \$523,787, after all charges and taxes, equivalent to \$3.69 a share on the average amount of common stock outstanding. This compares with \$257,000 or \$1.67 a share in 1927. Outstanding debentures were reduced to the extent of \$109,000 during the year.

Autosales Corp. reports net earnings for 1928, \$44,958, after all charges, equivalent to \$1.65 a share on 1,359,964 six per cent non-cumulative participating preferred shares. This compares with \$143,370, or 79 cents a share on 80,591 common shares, after preferred dividends in 1927.

Pratt & Lambert, Inc., has declared a regular quarterly dividend of \$1 a share on its 202,500 shares of no par value common stock, payable April 1 to stockholders of record March 15. The company's net income for the year ended Dec. 31, 1928, after taxes, was \$1,432,924.53.

The John W. Brown Mfg. Co., maker of automobile lamps reports net income, after all charges and taxes, of \$577,910 or \$5.77 a share on its 100,000 shares of capital stock, in 1928 compared with \$180,085 or \$2.40 a share on 75,000 shares of stock in 1927.

Indian Motorcycle Co. reports net loss of \$419,029 for the year 1928. Previous report, for the fiscal year ended August 31, 1927, showed net profit after all charges of \$256,322. The company has paid all dividends to date on its seven per cent preferred stock.

Douglas Aircraft Co. reports net earnings for the eleven months ended Nov. 30 as \$415,089. This compares with \$356,026 for the entire year 1927. Sales for the period totaled \$1,863,052.

Travel Air Co. reports net income for 1928, after all charges, as \$360,932. This is equivalent to \$3.60 a share on capital stock and compares with 68 cents a share for the previous year.

Eisemann Magneto Corp. has declared a quarterly dividend on preferred stock of \$1.75 a share payable Feb. 1 to stockholders of record Jan. 21.

Philp is Announced as Durant Chairman

CHICAGO, Feb. 2—A distinct surprise marked the Durant dealers' meeting at the Palmer House this week when it was announced that A. I. Philp is to be the new chairman of the board of Durant Motors, Inc. When Mr. Durant announced the changes to be made in his organization recently, Mr. Philp's association with the group was not disclosed. The assembled dealers met the announcement by rising to their feet in welcome.

Frederick J. Haynes, president of the company, introduced Mr. Philp as the man who was chosen by Dodge Brothers to direct the formation and development of their dealer organization. In a brief talk Mr. Philp told the dealers he and his associates expected to continue to operate on the lines of the creed of the late Horace F. Dodge.

Mr. Durant, unable to attend the meeting, sent a telegram complimenting the dealers on their showing in 1928 when the sale of 115,000 Durant cars established a record. Expressing confidence in the new leaders of the organization he wired, "I guarantee this management."

Among the speakers were: R. W. Judson, President of Continental Motors Co.; John A. Nichols, Jr., secretary-treasurer of Durant; A. H. Henniger, director and head of several Durant subsidiaries; Roy D. Kerby, vice-president and general manager of Durant Motors, Ltd.; R. T. Hodgkins, general sales manager; H. J. Shorter, assistant general sales manager; W. D. Laurie, general manager of George Harrison Phelps, Inc., and H. P. Gilpin, export manager.

Gardner Obtains Control of Parks Aircraft Corp.

CHICAGO, Feb. 2—Acquisition by the Gardner Motor Car Co. of St. Louis of control of the Parks Aircraft Corp. of East Carondelet, Ill., was announced in a message from Russel E. Gardner, Jr., president, at the annual dealers' luncheon this week.

The message was delivered by F. H. Rengers, sales manager of the company. It was also announced that the Gardner company had completed arrangements with the Finance Corp. of America to handle its dealers' commercial paper.

Detroit Employment Grows

DETROIT, Feb. 2—The weekly labor barometer of the Employers' Association of Detroit, issued yesterday, shows an increase of 3967 in the number of employed factory workers compared with the number employed last week. The total of employed workers listed by the association, which includes two-thirds of the factory workers in the Detroit district, is 289,611, an increase of 66,109 over the figure for the corresponding period of last year.



A. I. Philp

*Newly appointed chairman of the
board of directors of Durant Motors,
Inc.*

Aetna Ball Bearing Moves, Capacity Is Tripled

CHICAGO, Feb. 4—The Aetna Ball Bearing Mfg. Co., formerly at 2745 High St., announces its removal to a new factory and offices at 4600 Schubert Ave., this city. This is the second time within five years that the company has been forced to expand because of increased sales volume—mainly car equipment business.

Floor space and production capacity have been tripled, and adjoining ground purchased for future expansion.

Establishes Patent Office

DETROIT, Feb. 4—Sparks-Withington Co., manufacturer of Sparton radios and automobile horns, has established a patent and legal department under the supervision of T. H. Scofield and T. C. Browne. Mr. Scofield for several years has been in charge of the research and development of the company. Mr. Browne, who recently became associated with the firm, has done research work for a number of laboratories and for the Government during the war.

Pierce-Arrow Sees Growth

BUFFALO, Feb. 4—Pierce-Arrow Motor Car Co. received orders for January delivery totaling more than \$3,000,000, according to G. E. Willis, vice-president in charge of sales. The factory, entirely redesigned and retooled, is operating on a program which calls for spring shipments of unprecedented totals, Mr. Willis said.

Marmon 88 Announced

INDIANAPOLIS, Feb. 6—In addition to the Roosevelt, to be presented to the public on March 23, the Marmon Motor Car Co. will introduce within the next six months the 88. This car will complete Marmon's offering of straight eights in the top price range, according to G. M. Williams, president of the company.

Thermoid Rubber Sold to Syndicate

TRENTON, N. J., Feb. 4—Thermoid Rubber Co. and Stokes Asbestos Co. have been purchased by a syndicate of New York bankers, according to an announcement made by Robert J. Stokes, president of the Thermoid company and treasurer of the asbestos concern. The identity of the purchasers and the price involved was not made known. A new company, to be known as the Thermoid Co., will be formed shortly under the laws of Delaware, it was explained.

The Thermoid Rubber Co. is one of the largest making brake lining in the United States. It maintains agencies throughout the world. The concern also manufactures automobile radiator hose, universal joint disks and mechanical rubber goods. For many years the company manufactured rubber tires and tubes, but gave up this product some time ago.

Outstanding capital stock of the two companies has changed hands and a new company will be formed. Officers of the Thermoid Rubber Co. and the Stokes Asbestos Co. will be included in the holding company and the present management of the two companies will remain the same. Robert J. Stokes, who succeeds his father, William J. B. Stokes, will become president of the asbestos company. Mr. Stokes will also be general manager of both companies, while Joseph O. Baur, will be assistant general manager and remain as secretary-treasurer of the Thermoid Rubber Co. The two plants employ 800 hands.

Seiler Invited to Serve on Truck Show Committee

NEW YORK, Feb. 5—In preparation for the national commercial vehicle show which the board of directors of the National Automobile Chamber of Commerce authorized at its meeting in Chicago last week, five men have been requested to serve as an advisory committee. They are: P. W. Seiler, General Motors Truck Co., chairman; M. L. Pulcher, Federal Motor Truck Co.; W. C. White, White Motor Co.; H. E. Sneathen, Dodge Brothers, and W. S. McAfee, International Harvester Co.

The show is to be held in the Middle West, probably late in the year, and will be conducted in connection with a national motor transportation convention where important subjects of interest to commercial vehicle users will be discussed by authorities. Arrangements are under the supervision of the Commercial Vehicle Division of the N.A.C.C.

Colors Machines for \$17,000

BRIDGEPORT, CONN., Feb. 5—Bulard Co. has spent \$17,000 for the painting of bright colors on its shop machinery. It has been announced that a study of color effects with the aid of psychologists shows that workmen react favorably to pleasantly colored machines.

Automotive Exports Gain 29 Per Cent in 1928

Exports, Imports and Reimports of the Automotive Industry for December, 1928, and Total for Twelve Months Ending December, 1928

	Month of December		Month of December		Twelve months ending December			
	1927	Value	1928	Value	1927	Value	1928	Value
Automobiles, parts and accessories.....	..	\$27,512,147	..	\$34,210,742	..	\$388,528,422	..	\$500,174,431
Electric trucks and passenger cars.....	4	8,987	31	69,395	114	207,040	143	216,944
Motor trucks and buses, except electric (total)	7,136	5,742,587	9,009	6,726,519	105,447	70,123,600	138,782	91,321,468
Up to 1 ton, inclusive.....	5,425	2,880,649	6,248	3,325,465	85,674	40,777,025	104,668	51,350,334
Over 1 and up to 2 1/2 tons.....	1,565	2,376,488	2,562	2,895,340	17,517	22,685,792	31,015	32,201,309
Over 2 1/2 tons.....	146	485,450	199	505,714	2,256	6,660,783	3,099	7,769,825
PASSENGER CARS								
Passenger cars, except electric (total).....	16,473	14,310,152	20,945	16,721,811	278,748	207,966,456	368,328	263,574,394
Value up to \$500, inclusive.....	2,733	991,471	..	..	63,270	23,455,325	..	..
Value over \$500 up to \$800.....	3,026	1,715,274	..	..	90,214	50,215,348	..	..
Value over \$800 up to \$1,200.....	6,922	5,850,640	..	..	83,453	71,303,088	..	..
Value over \$1,200 up to \$2,000.....	2,839	3,440,039	..	..	32,429	40,422,571	..	..
Value over \$2,000.....	953	2,312,728	..	..	9,382	22,570,124	..	..
PARTS, ETC.								
Parts, except engines and tires.....	..	2,165,820	..	4,399,710	..	41,294,855	..	62,420,537
Automobile unit assemblies.....	..	4,433,410	..	4,880,987	..	50,177,408	..	60,333,587
Automobile parts for replacement.....	..	565,468	..	816,096	..	7,873,568	..	9,281,358
Automobile accessories.....	..	340,263	..	735,839	..	6,997,595	..	7,365,240
Automobile service appliances (n. e. s.).....	16	17,900	13	14,167	240	196,163	207	178,317
Station and warehouse motor trucks.....	45	20,625	78	38,558	928	419,172	854	396,403
Trailers.....	11	127,662	14	155,443	63	848,568	162	1,759,653
Airplanes, seaplanes and other aircraft.....	..	37,207	..	100,342	..	570,117	..	1,240,244
Parts of airplanes, except engines and tires..	..	..	..	..	..	..	..	..
BICYCLES								
Bicycles and tricycles.....	592	14,119	361	8,493	4,832	129,067	5,086	133,848
Motorcycles.....	1,609	356,269	1,565	377,389	19,469	4,373,808	18,934	4,402,576
Parts, except tires.....	..	118,088	..	91,218	..	1,311,726	..	1,472,054
INTERNAL COMBUSTION ENGINES								
Stationary and Portable	..	..	..	..	..	..	..	..
Diesel and Semi-Diesel.....	90	168,888	31	174,180	684	1,166,554	941	1,246,792
Other stationary and portable:	..	..	..	..	..	..	..	..
Not over 10 H.P.....	2,096	180,857	3,721	282,850	29,009	2,585,362	39,528	3,310,157
Over 10 H.P.....	99	61,934	169	102,830	2,738	1,605,102	4,761	2,015,931
Automobile engines for:	..	..	..	..	..	..	..	..
Motor trucks and buses.....	241	30,398	593	81,433	5,422	677,754	16,244	1,651,319
Passenger cars.....	1,664	255,325	5,368	514,791	91,631	10,207,741	108,061	11,374,824
Tractors.....	93	32,627	6	1,603	1,263	494,188	672	214,686
Aircraft.....	9	52,753	17	92,892	84	484,875	179	664,826
Accessories and parts for motors.....	..	209,299	..	194,277	..	2,409,547	..	2,542,432
IMPORTS								
Automobiles and chassis (dutyable).....	43	123,640	67	96,111	635	1,218,938	566	1,201,323
Other vehicles and parts for them (dutyable).....	..	16,251	..	68,181	..	259,329	..	630,362
REIMPORTS								
Automobiles (free from duty).....	22	23,137	15	12,748	181	285,972	263	285,667

EXPORTS of automotive products from the United States in 1928 reached a total value of \$522,097,974. This was an increase of \$117,398,369 over the 1927 total, or 29 per cent. Total American automotive exports in 1928 were \$104,505,518, so that the increase in six years has been 400 per cent.

Shipments of passenger cars in 1928 from the United States numbered 368,328 units. In 1927 the number was 66,791. American truck shipments for 1928 numbered 138,782 units, while in 1927 American trucks shipped abroad numbered 11,443. About 10 per cent of the total of American passenger car production and 26 per cent of this coun-

try's truck output went abroad. Canada, Argentine and Australia in the order named were the best market for American automotive goods.

In the above tabulation the various export items are classified and comparisons made between 1928 and 1927, both as to complete years and for the month of December.

Burd High Has Election; Reports Sales Increase

ROCKFORD, ILL., Feb. 4—Officers of the Burd High Compression Ring Co. for the ensuing year were elected at the recent annual meeting of the board of directors. The new officers are: F. M. White, president; A. A. Lundgren, vice-president and sales manager; M. E. Wahlstrom, secretary.

It was announced that the company sales in 1928 showed an increase of 64 per cent over the previous year, more piston rings being manufactured than in any preceding year in the firm's history, and it is expected that night shifts will continue to be employed throughout the coming year.

Texas Co. Leases Offices

NEW YORK, Feb. 4—W. P. Chrysler Building Corp. has signed a lease with the Texas Co., renting to the latter company 17 complete floors of the Chrysler Building now under construction with the option of expansion. This

is said to be one of the largest leases ever recorded for office space. The Texas Co. will house all its executive, administrative, engineering and clerical staff in these offices.

Five N.S.P.A. Members Help Fit "Question Mark"

DETROIT, Feb. 5—Five members of the National Standard Parts Association are included in a list of 19 manufacturers of materials supplied for Wright engines used in the record-breaking refueling flight of the Army Fokker monoplane, "Question Mark," at Los Angeles recently.

The N.S.P.A. manufacturers and the parts supplied are: Thompson Products Co., Cleveland, valves; American Hammered Piston Ring Co., Baltimore, piston rings; SKF Industries, Inc., New York City, thrust bearings; Norma-Hoffmann Bearings Corp., Stamford, Conn., accessory ball bearings (normal), and the Vellumoid Co., Worcester, Mass., gaskets.

New Company Organized to Produce Light Plane

RICHMOND, IND., Feb. 5—Plans for the production of a new airplane, weighing 660 lb. and of standard appointments, have been announced by Capt. Walter C. Davis, president and general manager of the recently organized Davis Aircraft Corp. The new organization has acquired the Vulcan Aircraft Co., Portsmouth, Ohio, and all machinery and equipment are being shipped from Portsmouth to Richmond.

The new plane, which probably will be known as the D.A.C., will be powered with a LeBlond engine, having a cruising speed of 90 m.p.h., and will be constructed entirely of metal with the exception of wing spars and the fabric covering of fuselage and wings. It will be priced well under \$3,000. Capt. Davis is former secretary of the George W. Davis Motor Car Co. and served with the U. S. Air Forces overseas. The corporation is capitalized at \$150,000.

Steel Mills Raise Price of Cold Strip

Advance of \$2 Per Ton Accompanies Strong Buying Demand

NEW YORK, Feb. 7.—An advance of \$2 per ton in the cold-rolled strip steel market is variously interpreted. The making over of hot-rolled strip prices last fall is said by some to have made it necessary for mills turning out cold-finish strip, which they buy in hot-rolled form, to advance their price at the first favorable opportunity. With their order books filled over practically the current quarter and compelled in the last few weeks to turn down orders on which they could not guarantee sufficiently prompt shipment, cold-rolled strip mills were in excellent position on Feb. 1 to effect the \$2 per ton advance.

Another explanation is that makers of semi-finished steel have let their customers understand that the recent advances in the scrap market made it necessary for semi-finished steel buyers to figure with the possibility of an early advance in prices. Demand for slabs from strip mills is especially heavy. There is talk of a \$2 a ton advance on hot-rolled strip on widths over 6 in. which would put all widths on a uniform \$2 basis.

Mills are striving to satisfy their customers in the matter of shipments but demand for deliveries within less than two weeks after receipt of specifications is so frequent that producers are considering the advisability of more concerted action to eliminate obviously unreasonable expectations in the matter of deliveries on the part of buyers. Demand for automotive alloy steels continues broad. The market for common steel bars is rather easy. Demand for bolts and nuts from automotive consumers is on the up trend.

Chapman is Seventh Man Leaving Durant Recently

DETROIT, Feb. 2.—William H. Chapman, comptroller of the Durant plant for the past three years, and connected with the organization for the past six years, resigned yesterday. His successor has not been announced.

Mr. Chapman's resignation is the seventh among officials of the Durant plant to be announced in the past several weeks. Others who have resigned are George Underhill, parts and service manager; T. E. Jarrard, sales manager; Frank J. Urquhart, assistant to Underhill; Jack DeBow, Mr. Jarrard's successor; J. B. McGarry, special representative, and L. D. Haas, assistant sales manager.

Announcement some time ago that headquarters of the Durant organization were to be moved from Elizabeth to Lansing has brought to Lansing approximately 50 workers from the Eliza-

Threefold Increase in Chilean Imports

WASHINGTON, Feb. 4.—Chilean automotive imports more than trebled last year, according to reports received by the Department of Commerce. Cars and trucks imported reached an estimated total of 5000, as compared with 1508 purchased in 1927, says the department. European manufacturers have not had any share in the enormous increase in sales in Chile, according to the reports.

beth plant. These include executives and other officials in the service, paint, body and export divisions. Heading the service department group is A. K. Steigerwalt, who joined the company about seven years ago as manager of parts and service for the western division.

Prices of Crude Rubber Show Gain; Close Steady

NEW YORK, Feb. 2.—Crude rubber prices have shown an advancing tendency closing this week at approximately 22 cents for immediate positions with prices ranging to 24 cents for advanced positions, according to F. R. Henderson Corp. A certain amount of fluctuation, attributed to profit-taking, was noticeable during the week, but the market closed fairly steady.

Final estimates of arrivals in the United States during January were placed at 51,200 tons. Stocks in London were increased to 24,423 tons. Shipments from Malaya during the first half of January are estimated in excess of 30,000 tons.

Tire Prices Are Revised

NEW YORK, Feb. 4.—Revised prices on tires, both balloon and high pressure, have been announced by B. F. Goodrich Co. and Goodyear Tire & Rubber Co., most of them ranging from 2½ to 10 per cent downward, although there was a slight advance of 2½ per cent on one style of long wear balloon tires of six-ply.

G. M. Building Sold

NEW YORK, Feb. 4.—Ownership of General Motors Building on Columbus Circle has just changed hands for the second time in about a year, the deal involving about \$15,000,000. Both the former owner and the new owner are individuals who invested in the building as real estate investments and are in no way connected with the automotive industry. General Motors Corp. continues its occupancy of 14 floors of this building at an annual rental of about \$900,000 and has options on a number of other floors.

Studebaker Offers Straight Eight Bus

First Chassis of Kind Is Announced in Three Different Models

SOUTH BEND, IND., Feb. 7.—America's first bus chassis powered by a straight eight engine was announced by the Studebaker Corp. of America this week. The new product is offered in two wheelbases, 158 in. and 184 in., and in three models. All are powered by the President Eight engine, which was only slightly changed to adapt it to bus work.

The 158-in. Junior chassis, Model 77, with either single or dual rear wheels, is priced at \$2,580. Prices on the special 184-in. chassis, Model 88, are as follows: Chassis only, with single or dual rear wheels, \$2,985; 22-passenger seminole observation parlor, \$6,595. Prices for the 184-in. heavy-duty chassis, Model 99, are as follows: Chassis only, single rear wheels, \$3,385; dual rear wheels, \$3,485, and 21-passenger street car bus, \$6,095.

Some of the more important features of the chassis are a dual carburetor, a semi-automatic choke, an oversized generator, an engine-driven fuel pump, a heavy fan mounting and weather-proof ignition. An option is given on three and four forward-speed transmissions. On the 184-in. special and heavy-duty chassis, there are two tubular cross-members and five pressed steel members. On the Junior chassis there are one tubular and five pressed steel cross-members. The maximum frame section is 8 1/16 in. by 3 in. by 7/32 in. Springs are heavier and wider, with extra heavy shackles. Four-wheel brakes with Westinghouse vacuum amplifier are standard equipment.

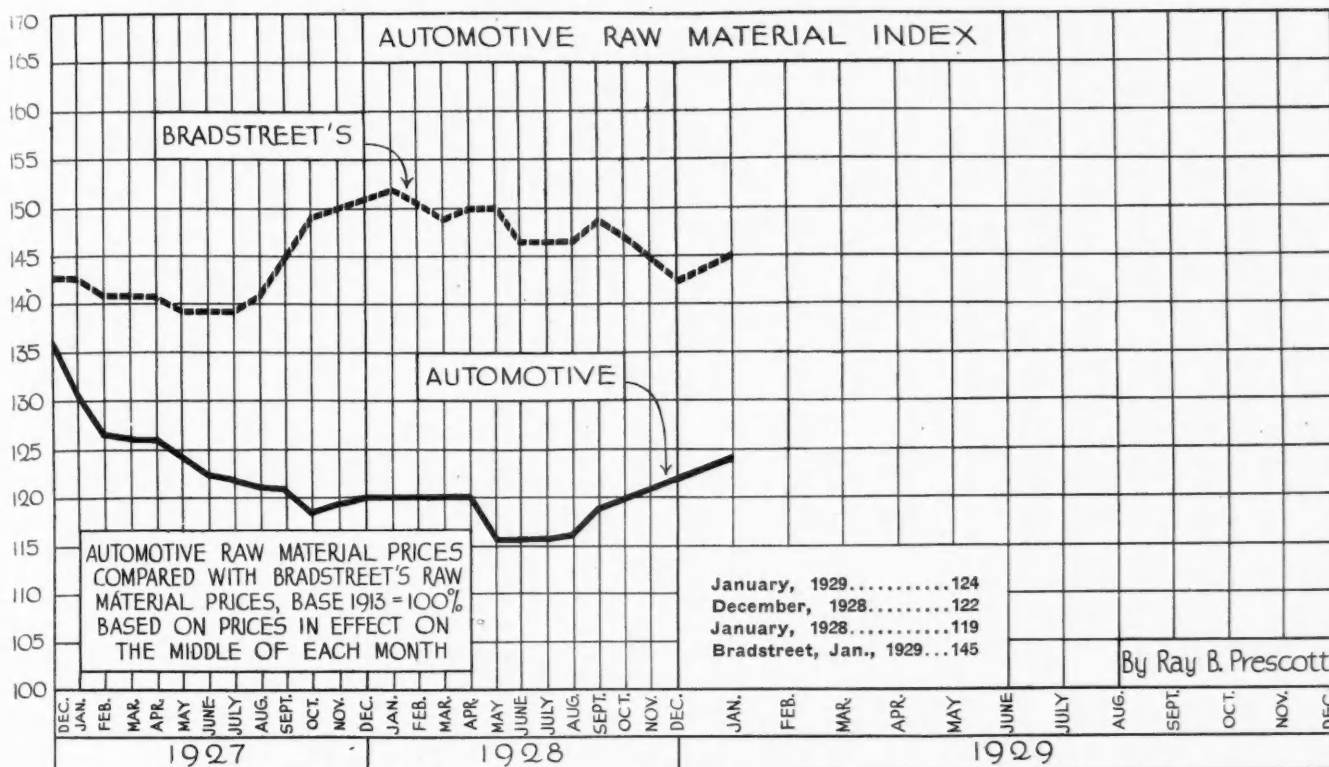
January Cadillac Sales Set Record, Says Fisher

DETROIT, Feb. 4.—Cadillac Motor Car Co. established a new record for January business, according to a statement by Lawrence P. Fisher, president.

"Shipments of Cadillac and LaSalle cars during the month exceeded by a comfortable margin our previous record January, which was in 1925," says Mr. Fisher. "Coming as it did after we had just ended the greatest year in Cadillac's history, this record-breaking January business together with commitments for early spring indicates that we are starting out on a year that promises to eclipse our 1928 record-breaking year."

"Our 1928 business increased more than 20 per cent over our best previous year. Our dollar volume, amounting to \$103,179,000, was not only the largest in our history, but was also the greatest dollar volume in the high-priced field in the auto industry for all time."

Raw Material Prices Advance Two Points



Sir Herbert Austin Sails for England After Visit

NEW YORK, Feb. 2—Sir Herbert Austin, British automobile manufacturer who has been in this country since the New York show carrying on negotiations for the manufacture and sale of his car in the American market, sailed for England last night on the Aquitania. Before leaving, he stated that his negotiations were proceeding satisfactorily, but that announcement of completed plans must await favorable action by his board of directors in England.

This he tried to secure by cable before leaving, but delays in one form and another had prevented final sanction from being obtained up to the hour of sailing, it was explained. Sir Herbert will probably call a meeting of his board immediately on his arrival and announcement of his plans for cultivation of the American market will probably be made immediately thereafter.

Gardner Reports Growth of Aviation to Coolidge

WASHINGTON, Feb. 2—The rapid growth of the aircraft industry during the past seven years was outlined this week by Lester D. Gardner of New York, president of the Aeronautical Chamber of Commerce, in a report personally submitted to President Coolidge at the White House. Mr. Gardner, in thanking the President for the encouragement given the industry during his term of office, said: "Seven years ago the industry employed 5000 persons;

the number now employed is 75,000. In 1921 our total production was 302 airplanes; in 1928 it was over 4000. Seven years ago we had less than 300 commercial pilots; now we have over 5000."

Investments Now \$150,000,000

WASHINGTON, Feb. 2—Investments by the public in aviation has increased from \$5,000,000 to \$150,000,000 during the past three years, William P. MacCracken, Jr., Assistant Secretary of Commerce for Aeronautics, declared in a report to Congress this week, showing the enormous growth of aviation. Aviation insurance rates in the last three years have been cut on an average of 40 per cent, and the coverage has been broadened, he stated.

Universal Spring Moves

GRAND RAPIDS, MICH., Feb. 4—Universal Spring Co., which recently purchased the assets of the U. S. Automatic Spring Co. of Napoleon, Ohio, has moved into its new factory of 25,000 sq. ft., here, equipped for increased production of anti-rattlers, spring seats, bushing tools, wheel pullers and other products.

Taxes in Maine \$6,000,000

AUGUSTA, ME., Feb. 4—The receipts last year from motor vehicle registration and the gasoline tax will be more than \$6,000,000, according to State Auditor Hayford. The gasoline tax was larger than the fees, the former being \$3,424,116 against fees of \$2,733,174.

Ohio Parts Co. Completes New Battery Building

CINCINNATI, Feb. 4—With the completion of a new, five-story concrete structure, The Ohio Parts Co. brings its sales and manufacturing departments together. The Ohio Building, as it will be labeled, is the last word in construction for the manufacture of battery cables, terminals and battery station equipment. Immediately adjoining are the brass and bronze foundries.

The new building, which will house the offices and assembly plants, boasts of several innovations. The entire interior is painted with aluminum paint which gives maximum light reflection. For publisher's representatives and customers a self-operating electric elevator has been provided. Special gas units are employed to heat the building. These can be utilized to heat any floor or any portion of a floor. With the stimulation provided by this new home, H. C. Terrell, president and sales manager of the company, expects to make 1929 the banner year in this company's history.

Plan New Wheel Factory

COLUMBUS, Feb. 4—Papers have been filed with the Secretary of State chartering the Ohio Motor Wheel Corp. with a capital of 400 shares of no par common stock and \$40,000 in preferred stock to manufacture and distribute patented demountable wire wheels for automobiles and airplanes. The incorporators are G. G. Geyer, W. A. Rubrecht and C. O. Howard.

Studebaker Surplus Allows Extra Stock

NEW YORK, Feb. 4—Studebaker Corp. of America has inaugurated a policy of distributing surplus net profits in the form of stock dividends. Four quarterly dividends of one per cent each payable March 1, June 1, Sept. 1 and Dec. 1, 1929, to stockholders of record Feb. 9, May 10, Aug. 10 and Nov. 9, respectively, have been declared. In addition to the stock dividend regular cash dividends of \$1.25 on common and \$1.75 on preferred were declared payable March 1 to holders of record February 9.

A. R. Erskine, president, in announcing the stock dividend stated that the corporation for the past 18 years had accumulated surplus net profits in excess of \$36,000,000.

"The directors," Mr. Erskine said, "have concluded that the stockholders should share in a reasonable distribution of these accumulated surplus earnings through a definite stock dividend policy which will impose a relatively small addition to the cash disbursements of the corporation. Accordingly the directors have adopted a policy of paying one per cent quarterly stock dividends for the four quarters of 1929."

Commercial Car Sales High

SOUTH BEND, Feb. 4—Studebaker commercial car sales for January were more than double those of the corresponding month in 1928, according to C. H. Wondries, manager of commercial car sales. It was shown that sales in this field have increased steadily since the company began to turn out commercial cars three and a half years ago.

Kinner Airplane Output Is 30 Engines Monthly

GLENDALE, CALIF., Feb. 4—The Kinner Airplane & Motor Corp. is now completely installed in its new plant here. The new plant, including test houses, covers approximately two and one-half acres, and is completely equipped with the most improved type of machinery, tools and equipment for the

Coming Feature Issue of Chilton Class Journal Publications

Feb. 23—Statistical Issue
Automotive Industries.

accurate production of airplane engines on a quantity basis.

The company is concentrating on the production of one size of engine, a five-cylinder radial type, rated at 100 hp. and at 1800 r.p.m. The engine has been approved by the United States Department of Commerce Bureau of Aeronautics, which approval is covered by an approved type certificate No. 3.

Engines are now being produced and shipped at the rate of 30 per month, and the indications are that production will exceed 60 engines per month by the end of March. N. N. Tilley, formerly civilian chief engineer at McCook Field, Dayton, Ohio, has recently been made chief engineer of the company.

McClaren Tire & Rubber Expands for New Product

CHARLOTTE, N. C., Feb. 4—McClaren Tire & Rubber Co., of this city, has announced the beginning of quantity production of a new extra heavy tire known as the McClaren Autocrat Universal Balloon. Additional equipment installed in the plant here for the manufacture of this tire will increase production approximately 25 per cent, it is estimated.

The company is owned by the Ajax Tire & Rubber Co., which at the beginning of this year had on file orders for about 90 per cent more tires than on the corresponding date of 1928.

Otis Steel Expands Warehouse

NEW YORK, Feb. 2—Otis Steel Co. is finding its present warehouse facilities for automobile sheet steel inadequate and has awarded contracts for enlarging its capacity. The company also will add another cold roll mill for auto body sheets.

Lelands' Complaint Against Ford Lost

DETROIT, Feb. 4—The original complaint filed by Henry M. Leland, Wilfred C. Leland and others against Henry Ford arising out of the purchase of the Lincoln Motor Car Co. by the Fords, has been dismissed by the Michigan Supreme Court which remanded the case to the Oakland County circuit court. Permission was given the Lelands and stockholders in the old Lincoln company to file an amended complaint.

The suit of the Lelands and stockholders was for \$6,000,000 and was based on the claim that the Fords gained possession of the Lincoln company as a result of an oral agreement that Henry Ford would see to it that the stockholders would be fully reimbursed by him for outstanding stock amounting to about \$6,000,000. This was said to be in 1922 when the United States district court ordered the property sold and the Fords paid the receiver of the company \$8,000,000.

Ford Drops Legal Office

DETROIT, Feb. 2—The legal department of the Ford Motor Co. has been abolished and will cease to function as a part of the company within a short time, it was announced this week. Clifford B. Longley, head of the legal department, will head a firm of counselors who will handle the company's legal business in a downtown Detroit office and will be open for general practice as well.

Fisher Loses Plant Men

DETROIT, Feb. 4—C. C. Gross, factory manager, and G. E. Dorman, plant engineer of the Fisher Body Corp., Lansing, have resigned. Mr. Gross, who has been with the company for six years, announced that his resignation was because of other interests. He is succeeded by his former assistant, E. R. Leeder. Mr. Dorman has been at the Lansing plant for four years, having been transferred from the Detroit factory. He has not announced his plans and his successor has not been named.

Calendar of Coming Events

SHOWS

Aeronautical, Grand Central Palace, New York Feb. 6-13
All-American Aircraft Show, Detroit Board of Commerce, Detroit, Apr. 6-14
Automobile Salon, Inc., Hotel Biltmore, Los Angeles Feb. 9-16
Automobile Salon, Inc., Palace Hotel, San Francisco Feb. 23-Mar. 2
Boston, Mass., Mechanics Bldg. March 2-9
Geneva Automobile Show Mar. 15-24
Leipzig, Germany, Fair Mar. 3-13
Melbourne Automobile Show May 2-11
Rome Automobile Show Jan. 30-Feb. 16

CONVENTIONS

Fifth Annual Army-Navy Standards Conference, Naval Aircraft Factory, Philadelphia Feb. 11-14

Chicago Power Exhibition and Conference, Coliseum, Chicago Feb. 12-16
Marketing Executives Conference, Hotel Gibson, Cincinnati April 3-5
American Society of Mechanical Engineers, Detroit May 1-3
American Management Association, New York May 7-9
Annual Meeting, National Foreign Trade Council, Baltimore April 17-19
National Highway Traffic Association, Hotel Stevens, Chicago May 13-15

RACES

Daytona, Fla. Mar. 1-15
Akron May 12
Indianapolis May 30
Detroit June 9
Altoona, Pa. June 15
Salem, N. H. June 29

Akron Aug. 18
Syracuse Aug. 31
Altoona, Pa. Sept. 2
Cleveland Sept. 15
Salem, N. H. Oct. 12

S. A. E. Sectional

Cleveland " 11
Detroit " 11
Canadian, Toronto " 13
New England, Boston " 13
Northern California, Berkeley " 14
Indiana " 14
Metropolitan, Park Central Hotel, N. Y. " 14
Northwest, Portland, Oregon " 16
Pennsylvania, Philadelphia " 19
Buffalo, Hotel Statler " 19
Dayton " 19
Detroit, Book-Cadillac (Aeronautics) " 25
Washington, City Club (Aviation) " 27